

INTERSTATE COMMERCE COMMISSION

NOTICE

[FINANCE DOCKET NO. 30186 (SUB NO. 2)]

TONGUE RIVER RAILROAD COMPANY - CONSTRUCTION AND OPERATION
OF ADDITIONAL RAIL LINE FROM ASHLAND TO DECKER, IN
ROSEBUD AND BIG HORN COUNTIES, MT

AGENCY: Interstate Commerce Commission.

ACTION: Notice of Availability of Draft Environmental Impact Statement.

SUMMARY: The Tongue River Railroad Company has applied to the Interstate Commerce Commission for authority to construct and operate a 42-mile rail line from a point south of Ashland to a connection with operating coal mines near Decker, MT. In addition to analyzing the environmental impacts from the railroad's preferred alignment (which generally parallels the Tongue River), this draft EIS also analyzes the Four Mile Creek Alternative which would avoid the Tongue River Dam and a 10-mile section of the river just north of the Tongue River Dam, and the no-build alternative. At this stage in the environmental analysis, the Commission's Section of Energy and Environment considers the Four Mile Creek Alternative to be the environmentally preferable route should the Commission approve the proposed construction and operation. Comments are specifically requested regarding this preliminary determination and recommended mitigation. The Commission will consider all comments to this draft EIS before issuing a final EIS and rendering a final decision in this proceeding.

DATES: Written comments must be filed by September 21, 1992

ADDRESSES: Send an original and 10 copies of comments referring to Finance Docket 30186 (Sub No. 2) to:

Dana White
Section of Energy and Environment, Room 3214
Interstate Commerce Commission
Washington, D.C. 20423

Send one copy to the railroad's representative:

Mr. Thomas Ebzery
Village Center I, Suite 165
1500 Poly Drive
Billings, MT 59102

FOR FURTHER INFORMATION CONTACT:

Dana White (202) 927-6214 or Elaine Kaiser, Chief, Section of Energy and Environment (202) 927-6248. TDD for hearing impaired: (202) 927-5721.

SUPPLEMENTARY INFORMATION:

The Ashland to Decker rail line is an extension of the planned but not yet constructed 89-mile rail line between Miles City and Ashland, MT for which the Tongue River Railroad Company obtained ICC authorization (ICC decision granting construction and operation authority in F.D. 30186, served September 4, 1985) and for which an FIS has been completed (served August 23, 1985).

Copies of this draft EIS have been served on the parties of record and to appropriate Federal, state, local and private agencies and individuals for review and comment. Requests for additional copies of the draft EIS should be directed to Dana White, Section of Energy and Environment, Interstate Commerce Commission, Washington, D.C. 20423, or by telephoning (202) 927-6214.

Dated: July 17, 1992

By the Commission, Howard K. Face, Director, Office of Economics.

Sidney L. Strickland, Jr.
Secretary

CONCLUSION

This draft Environmental Impact Statement (draft EIS) analyzes the potential environmental impacts of the Tongue River Railroad Company's (TRRC) proposed rail line extension from Ashland to Decker, Montana (proposed Extension). TRRC's preferred alignment for the proposed Extension would generally parallel the Tongue River. There are two alternatives: (1) the Four Mile Creek Alternative which circumvents the Tongue River Dam and a 10-mile section of the Tongue River just north of the Tongue River Dam, and (2) the no-build alternative. In many instances, the environmental impacts associated with the preferred alignment and the Four Mile Creek Alternative may be avoided or substantially reduced through the implementation of the recommended mitigation measures outlined in Chapter 6.

At this point in the Section of Energy and Environment's (SEE) environmental analysis, it appears that the Four Mile Creek Alternative would be more environmentally advantageous than TRRC's preferred alignment. The Four Mile Creek Alternative would avoid construction and operation near the Tongue River Dam, would avoid disturbing an environmentally sensitive section of the Tongue River just north of the Tongue River Dam, and would eliminate the need to construct five bridges and a tunnel. The Four Mile Creek Alternative would also avoid impacts to the Tongue River Reservoir State Recreation Area and the Cormorant Estates. However, because of the topography and grade, TRRC has indicated that construction and operation of the Four Mile Creek Alternative may be more costly than TRRC's preferred alignment and that there may be increased safety concerns.

SEE invites comments on all aspects of the draft EIS. Also, we specifically request comments and, where possible, supporting data on SEE's preliminary determination that the Four Mile Creek Alternative, rather than TRRC's preferred alignment, is the environmentally preferable route. Further, interested parties are specifically requested to comment on the scope and adequacy of the proposed mitigation, including measures designed to address the concerns of Native Americans.

EXECUTIVE SUMMARY

The Tongue River Railroad Company (TRRC) submitted an application to the Interstate Commerce Commission (ICC) on June 28, 1991, seeking authority to construct and operate a rail line from Ashland to Decker, in Rosebud and Big Horn Counties, Montana. The proposed 42-mile rail line from Ashland to Decker (the proposed Extension) would extend from the planned 89-mile rail line between Miles City and Ashland for which TRRC obtained ICC authorization in 1985 (Finance Docket No. 30186). TRRC, a common carrier, anticipates that the principal commodity to be moved on the proposed line will be coal.

TRRC's preferred alignment for the proposed Extension from Ashland to Decker would generally paralleling the Tongue River. TRRC has proposed one alternative, the Four Mile Creek Alternative, which is the only alternative TRRC considers feasible because of the surrounding terrain. The Four Mile Creek Alternative would avoid the Tongue River Dam and an approximate 10-mile segment of the Tongue River that includes the Tongue River canyon. This alternative would then join TRRC's preferred alignment at the confluence of Four Mile Creek and the Tongue River. TRRC has indicated that the construction and operation of the Four Mile Creek Alternative may be more costly and present increased safety risks. A map depicting TRRC's preferred alignment and the Four Mile Creek Alternative is shown in Figure S-1 of this Executive Summary. The other alternative is the no-build (no-action) alternative. Under this alternative, the proposed Extension between Ashland and Decker would not be built.

This draft Environmental Impact Statement (draft EIS) has been prepared by the ICC's Section of Energy and Environment (SEE) to comply with the ICC's statutory obligations under the National Environmental Policy Act (NEPA) and other related statutes such as National Historic Preservation Act (NHPA) and the American Indian Religious Freedom Act (AIRFA). It assesses the environmental effects of TRRC's preferred alignment, the Four Mile Creek Alternative, and the no-build (no-action) alternative. Much of the technical data in this draft EIS was developed by TRRC in the Environmental Report which TRRC filed with its application to the ICC on June 28, 1991. In preparing this draft EIS, specifically with reference to Native Americans, the SEE tiered

to the U.S. Department of Interior, Bureau of Land Management's (BLM) Environmental Impact Statement entitled: Draft Economic, Social and Cultural Supplement, Powder River I Regional EIS, (June 1989). In addition, the ICC retained the consultant services of Ethnoscience to further fulfill the ICC's obligations under NEPA and AIRFA. This draft EIS updates, where necessary, the information and analysis in the draft and final EIS, which were prepared in 1983 and 1985 respectively, for the 89-mile line between Miles City and Ashland.¹

This draft EIS, and ultimately the final EIS, will be used, at least in part, by certain other agencies which will review certain environmental aspects of the proposed construction and operation. Federal agencies which may have permitting and/or review authority include the U.S. Army Corps of Engineers which enforces Section 404 of the Clean Water Act; the U.S. Fish and Wildlife Service which is responsible for enforcement of Section 7 of the Endangered Species Act; and BLM which has permitting authority when Federal lands are involved. Because of its expertise with respect to environmental issues associated with the proposed Extension, BLM was designated a cooperating agency in the preparation of this document.

A number of Montana State agencies with jurisdiction over various aspects of the proposed construction and operation include the Montana Department of Natural Resources and Conservation, the Department of State Lands, the Department of Fish, Wildlife and Parks, and the Department of Transportation. Also, Rosebud and Big Horn County planning commissions will oversee all local permits.

Following review and comment of the draft EIS by all interested parties, SEE will prepare and issue a final EIS. This draft EIS, and the final EIS, will become part of the official ICC record in the proceeding and will be considered by the ICC in deciding whether to grant or deny the proposed construction and operation of a rail line from Ashland to Decker.

¹The environmental review in the draft and final EIS for the Miles City to Ashland line analyzed four proposed routes and also included an analysis of the no-build alternative. The four routing proposals included: (1) the TRRC's preferred route; (2) the Tongue River Alternative Route that would cross Pumpkin Creek and run along the east side of Tongue River and join the preferred route 10 miles north of Ashland; (3) the Moon Creek Alternative Route that would run west from Miles City along the former Milwaukee Railroad route, follow the Yellowstone River and Moon Creek, and join the preferred route north of Ashland; and (4) the Colstrip Alternative Route that would run the line west from Ashland to Colstrip where it would join the Burlington Northern Railroad.

In conclusion, the ICC determined that the route preferred by TRRC and the Colstrip Alternative were feasible choices. TRRC's preferred route had adverse environmental impacts, but the adverse impacts on adjoining landowners would be protected by Montana law and measures in the mitigation plan. Adverse impacts of each optional alignment were also addressed in the mitigation plan.

Project Purpose and Need

The principal purpose of the proposed Extension, like the already approved 89-mile portion, will be to transport low sulfur, sub-bituminous coal from mines in southeastern Montana primarily to electric utilities in the Midwestern states. With the construction and operation of the proposed Extension, TRRC expects to capture existing coal traffic originating at the Spring Creek and Decker mines, plus some tonnage being hauled by Burlington Northern Railroad from the Gillette, Wyoming area. TRRC states that by using the proposed rail line between Miles City and Decker, a midwestern electric utility will save 130-160 train miles over the route now being used to haul coal from the area. If the project is approved, TRRC plans to begin construction in 1992 or 1993, scheduling construction from April to October over a period of three years. TRRC would like to begin operation of the line in 1995.

The proposed Extension would be a single track main line with a right-of-way averaging 200 feet, with cut or fill construction as required. The alignment will be designed to facilitate the operation of unit coal trains of approximately 112-125 cars with a design speed of 40 and 50 miles per hour.

Description of the Regional Environment

TRRC's preferred alignment and the Four Mile Creek Alternative are located in the Tongue River Basin, a sub-drainage of the Yellowstone River Basin. Originating in the Big Horn Mountains in Wyoming, the Tongue River flows northward into Montana to its confluence with the Yellowstone River near Miles City.

The Tongue River valley is bordered by hills and porcellanite-capped buttes that rise 200 to 500 feet above the valley bottom. Precipitation is very light. In addition to the Tongue River itself, the Tongue River Reservoir and Dam near the Montana-Wyoming border is a major water feature of the basin. Downstream from the reservoir are numerous drainages that are generally intermittent. In Montana, the flow of the Tongue River is controlled by the Tongue River Reservoir and Dam.

The Tongue River cuts through a narrow, twisting valley and canyon from the Tongue River Reservoir and Dam north to its confluence with Four Mile Creek, a distance of about 10 miles. Because the river channel is narrow and fairly deep along this section, portions of the river do not freeze, providing important winter habitat for waterfowl and other wildlife.

Over 90 percent of the land in the Tongue River valley is used for agriculture, principally family-owned cattle ranching. The four principal counties affected by the

proposed extension are Big Horn, Custer, Powder River and Rosebud counties, with overall sparse population.

The Northern Cheyenne Indian Reservation is located in Rosebud and Bighorn counties, with the Tongue River forming the Reservation's eastern boundary. Besides the Northern Cheyenne, the Crow, Sioux and Arapahoe traditionally lived and hunted throughout the entire project area. The proposed Extension would be located on the eastern shore of the Tongue River and would not directly cross over the Northern Cheyenne Reservation.

The following three endangered species may be present in the study area: (1) bald eagle, (2) peregrine falcon, and (3) black-footed ferret. In addition, the wildlife populations utilizing the wide range of habitats along the Tongue River are diverse, and both sport and non-sport fisheries are present in the Tongue River and in the Tongue River Reservoir.

Although further investigation will be conducted, a preliminary analysis indicates the presence of possible historical, archaeological and cultural resources within or near the proposed alignments.

Synopsis of Environmental Impacts of the Proposed Extension

TRRC prefers the alignment generally paralleling the Tongue River. Depending on the proximity to the river, which varies with the topography, construction and operation of this alignment could have significant impacts on the river's aquatic ecology. The most significant impacts to the river are expected to occur along the 10-mile narrow river valley which extends from the Tongue River Dam north to the confluence with Four Mile Creek. Because of the topography and because it provides important habitat for waterfowl and other wildlife, this section of the river is considered to be most sensitive and vulnerable to potential negative impacts from the proposed rail line construction and operation. The impacts from construction and operation of the rail line to this section of the Tongue River would be reduced or eliminated if the Four Mile Creek Alternative were adopted.

Presently, the Tongue River valley from the Reservoir to Miles City is sparsely populated. The area, though dedicated primarily to cattle ranching, is open range land, undeveloped and natural. Construction and operation of TRRC's preferred alignment or the Four Mile Creek Alternative would permanently alter the character of the landscape for the duration of the line's operation.

Because most of the right-of-way would be fenced, the rail line could act as a barrier to wildlife movement, such as deer and pronghorn antelope, by barring access to forage

areas. Access to sport fishing along the river may be lost. Some wetlands along the river also may be lost.

Spokespersons for the Northern Cheyenne Tribe have stated that the construction and operation of the proposed Extension may permanently disturb or destroy certain aspects of the traditional way of life enjoyed by individuals and communities on the Reservation. Principally, construction and operation of the railroad could alter the natural and spiritual landscape, impede access to traditional plant-gathering areas along the river, and possibly destroy or disturb sacred burial grounds and cultural sites. Also, the Tribal government has indicated that the rail line will stimulate increased regional coal mining, bringing increasing negative pressures on the Tribe's resources and well-being without guaranteeing any positive benefits.

Ranchers are concerned about the construction and operation of the Extension because it may disrupt cattle operations, sever grazing lands, introduce increased fire hazards, noxious weeds and generally reduce land productivity and values.

Although the construction and operation of the proposed Extension may bring increased economic benefits there may be associated negative social and economic costs, particularly during construction when large, temporary construction crews may strain the area's social and economic resources.

A number of concerns were raised about the construction and operation of the proposed Extension and its impact on the structural integrity of the Tongue River Reservoir and Dam, particularly the latter. TRRC states that blasting along its preferred alignment would not be employed if seismic analysis determines that blasting would pose a risk to the Dam.

A table summarizing the environmental impacts of the TRRC preferred alignment and the Four Mile Creek alternative is outlined in Table S-1 of this Executive Summary.

Discussion of TRRC's Preferred Alignment and the Alternatives

TRRC's preferred alignment generally parallels the Tongue River, connecting the terminus point of the already-approved line near Ashland with the Spring Creek Railroad Spur just north of Decker. (See Figure S-1.) Moving south from Ashland until the alignment reaches the Four Mile Creek confluence with the Tongue River, the route moves through fairly open range land. The portion of the alignment from Four Mile Creek to the Tongue River Dam, a distance of about 10 miles, would require the construction of five bridges and one tunnel due to the narrowing of the Tongue River valley and the meanders of the river. Since portions of this section of the river never freeze and serve as an important sanctuary

for wintering and nesting waterfowl, this section also represents one of the most sensitive areas of environmental concern regarding TRRC's preferred alignment.

As an alternative, TRRC proposes to avoid the section between Four Mile Creek and the Tongue River Dam. This alternative alignment (the Four Mile Creek Alternative) would diverge from the Tongue River at the confluence with Four Mile Creek, extend southeast along Four Mile Creek, turn southwestward and continue to a juncture with the preferred alignment near the Tongue River Reservoir. (See Figure S-1.) The Four Mile Creek Alternative would avoid the Tongue River Dam and that portion of the river north of the Dam where adverse environmental impacts to the Tongue River, wildlife, and wildlife habitat could occur. Also, this alternative would eliminate the need to construct five bridges and a tunnel. In addition, the Four Mile Creek Alternative would avoid the Tongue River Reservoir State Recreation Area and the Cormorant Estates (a recreation homes development). For these reasons, it appears that the Four Mile Creek Alternative would be the environmentally preferable route.

TRRC has indicated that, because of the terrain, operation of the Four Mile Creek Alternative may increase potential safety risks. Also, TRRC has indicated that construction and especially operation of the Four Mile Creek Alternative may be more costly. However, TRRC has not provided cost comparisons. Accordingly, we specifically invite TRRC to provide this information. Although not a controlling factor in the environmental review process, cost information is useful in assessing the feasibility of any proposed alignments.

The other alternative would be the no-build (no-action) alternative in which TRRC would not construct the proposed Extension. Under this alternative, the coal moving from the Decker area would continue its present routing. However, since TRRC has already obtained authority to construct and operate the line between Miles City and Ashland, TRRC could construct this portion of the line some time in the future.²

Mitigation

TRRC has developed and committed to undertake a detailed mitigation plan that would address the potential adverse impacts of the construction and operation of both the TRRC's preferred alignment and the Four Mile Creek Alternative (see Appendix A). The mitigation measures proposed by SEE are discussed in Chapter 6..

²If the proposed Extension is not built, and TRRC proceeds with the construction and operation of the already-approved Miles City to Ashland rail line, the environmental impacts associated with this scenario have been addressed in the 1985 TRRC EIS.

TRRC's proposed mitigation plan is designed to reduce or eliminate the identified adverse environmental impacts associated with the construction and operation of the proposed Extension and is adaptable to either TRRC's preferred alignment or the Four Mile Creek Alternative. This plan includes measures to address environmental impacts associated with the proposed Extension. These impacts include land use; social, economic and transportation concerns; safety; water quality; aquatic and terrestrial ecology; Native American concerns; and cultural resources. The proposed mitigation plan also discussed the formation of a Multi-agency/Railroad Task Force comprised of the ICC and various other Federal, state and, if appropriate, private agencies and organizations. The purpose of the Task Force is to advise, assist and coordinate with TRRC as it implements the terrestrial and aquatic ecology measures set forth in the mitigation plan.

Native American concerns are addressed within the aforementioned impact categories of TRRC's mitigation plan where appropriate. For example, with respect to cultural resources, TRRC states that in the preparation of any cultural resource study, TRRC will invite representatives from the Northern Cheyenne Tribe to identify and compile a list of traditionally-important plants that occur in the area of potential effect as well as the gathering sties and access points for these plants. TRRC then states that the information provided by the Tribal representatives regarding plant species and locations will be used by TRRC in considering the need to protect and assure continuing access to these plants. With respect to socio-economic issues, TRRC has stated that it would appoint a liaison between TRRC management and the Northern Cheyenne Tribe to assist in ensuring that Tribal members receive an equal opportunity to secure temporary construction and full-time operational jobs with TRRC.

We note that three endangered species (the bald eagle, peregrine falcon and black-footed ferret) may be present in the project area. Pursuant to Section 7 of the Endangered Species Act, consultation between the ICC, TRRC, and the U.S. Fish and Wildlife Service, is in progress regarding the potential effects the proposed Extension may have on these species. This issue is specifically addressed in TRRC's mitigation plan.

The ICC is negotiating a Programmatic Agreement with the Montana State Historic Preservation Officer, the Advisory Council on Historic Preservation and TRRC to reduce or eliminate adverse impacts to cultural and historic resources. This Programmatic Agreement is being negotiated in accordance with the requirements of the National Historic Preservation Act. Representatives of the Northern Cheyenne Tribe will be asked to concur in this agreement and other affected tribes will be asked to participate where appropriate. In addition to the mitigation measures in the Programmatic Agreement addressing potential adverse cultural impacts to Native Americans, specifically the Northern Cheyenne, further mitigation measures are contained in TRRC's mitigation plan.

Based on our independent analysis of the project, the comments from various governmental and private agencies, Native Americans, and other interested parties; TRRC's proposed mitigation, and the measures contained in the Programmatic Agreement, SEE recommends that any ICC decision approving the proposed construction and operation be subject to (1) TRRC's Mitigation Plan for the Proposed Extension (Appendix A), and (2) an executed Programmatic Agreement, or in the event the Programmatic Agreement is not executed, other appropriate mitigation to protect cultural/historic resources consistent with Section 106 of the National Historic Preservation Act and the American Indian Religious Freedom Act.

Public Participation

The Council on Environmental Quality guidelines (40 CFR 1500) require Federal agencies preparing an EIS to involve the public in implementing the environmental review process. Prior to filing the application, as required by the ICC's environmental regulations (49 CFR 1105), the ICC's Section of Energy and Environment published in the Federal Register a Notice of Intent to Prepare an Environmental Impact Statement and to hold public scoping meetings.³ In December 1989, scoping meetings were held in Montana. At these meetings, the public identified areas of environmental concern regarding the proposed Extension that needed to be addressed in the EIS. Based on all the comments received, site visits, and meetings and correspondence with Federal and state agencies, the final scope of the EIS was published in the Federal Register in March 1990. The issues identified in the final scope of the EIS formed the analytical structure of this draft EIS.

Federal, state, and local agencies, private agencies and organizations, and all interested parties are requested to comment on all aspects of the draft EIS. Also, we specifically request the public to comment and, where possible, provide supporting data on our preliminary determination that the Four Mile Creek Alternative, rather than TRRC's preferred alignment, is the environmentally preferable route. Further, interested parties are specifically requested to comment on the scope and adequacy of the proposed mitigation measures. In addition, if the ICC holds oral hearings in this proceeding, the public will be invited to participate in the hearing process and present comments on the draft EIS. All the comments will be considered by the ICC in preparing the final EIS and in making a final decision regarding the proposed construction and operation.

³ Where an EIS is required, the ICC's regulations require the applicant to consult with the ICC's Section of Energy and Environment six months prior to filing an application, 49 CFR 1105.10. In January 1989, TRRC informed the Section of Energy and Environment that it intended to file an application for the proposed Extension. In November 1989, the Section of Energy and Environment commenced the process for preparing an EIS, anticipating that TRRC would file the application within six months. However, TRRC did not file its application until June 1991.

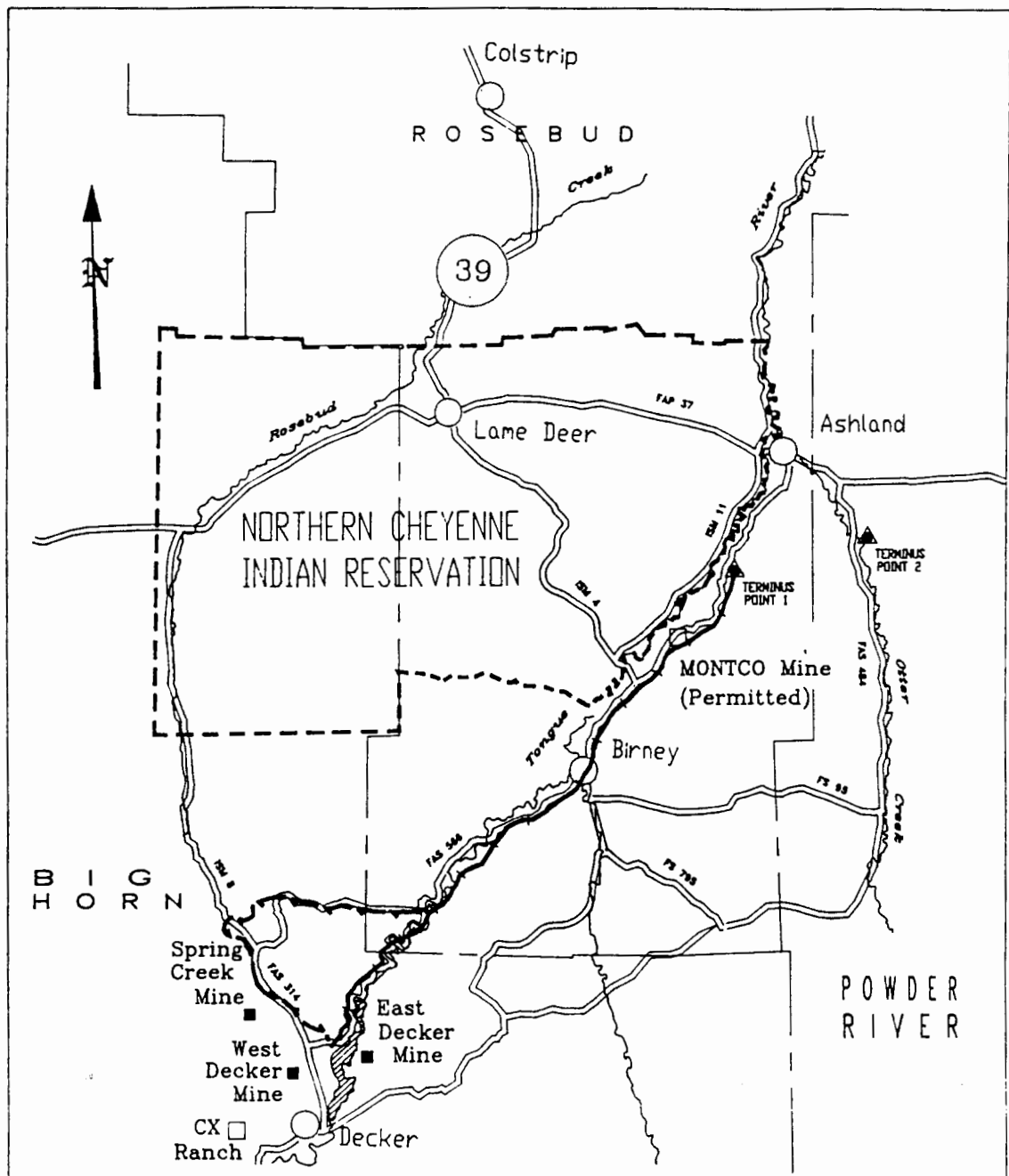
Send an original and 10 copies of all written comments, referring to Finance Docket 30186 (Sub No. 2), to: Dana White, Section of Energy and Environment, Room 3214, Interstate Commerce Commission, Washington, D.C. 20423. Questions may also be directed to Ms. White at (202) 927-6214.

Also, a copy of the comments to the draft EIS should be sent to TRRC's representative: Mr. Thomas Ebzery, Village Center I, Suite 165, 1500 Poly Drive, Billings, MT 59102.

This draft EIS has been served on all parties of record. A limited number of additional copies is available upon request.

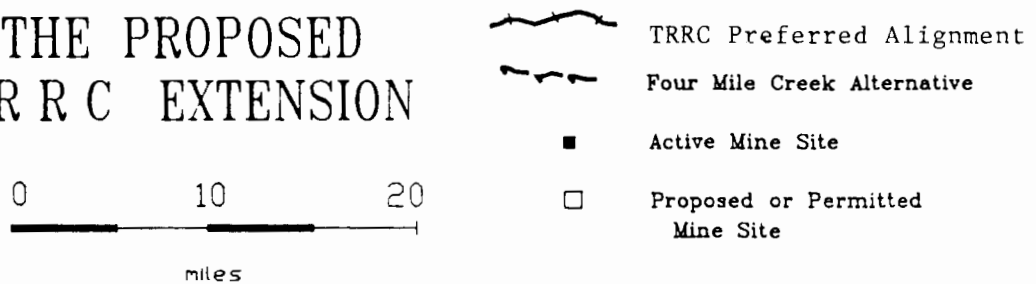
Date draft EIS made available to the public: July 17, 1992

Written comments on the draft EIS due: September 21, 1992



ROUTE OF THE PROPOSED T R R C EXTENSION

Figure S-1



Prepared by MRA, Rev. 1990, based on 1:500000, topographic map of Montana

Table S-1 Summary Impact Table.

LAND USE	TRRC PREFERRED ROUTE [40.3 miles]	FOUR MILE AL- TERNATIVE [50.2 miles]
Right-of-way acquisition (acres)		
Agricultural land		
Irrigated	33	26
Non-irrigated, grazing	1,184	1,330
Total agricultural land	1,217	1,356
Land in other uses	31	0
Total land	1,248	1,356
Additional land lost (acres)		
Due to irrigation impact	70	20
Due to severance, Cormorant Estates	60	0
Total loss of land use (acres)	1,378	1,376
Affected landowners		
Number with agricultural land	22	26
Number with lands in other uses	1	0
Total number of affected owners	23	26
Existing improvements affected		
Number of ditches intersected	5	7
Houses, Cormorant Estates	1	0
Proposed improvements affected		
Homesites, Cormorant Estates	2	0
Cumulative loss of production value (\$s) ¹	208,494	222,912
¹ Based on the table above, the total agricultural land lost for the TRRC's route would be 1,287, i.e., 1,217 + 70; for the Four Mile Creek Alternative, 1,376, i.e., 1,356 + 20. The total acreage is multiplied by the assumed value for agricultural land of \$162 per acre.		
SOCIAL AND ECONOMIC	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Construction population for 1992, peak year		
Direct employment	395	395
Indirect employment	600	600
Total employment	995	995
Impact population	711	711
Construction expenditures in the local economy		
Construction salaries (million \$)	24	24
Construction materials (million \$)	45	45
Operation and maintenance population for 2010, peak year		
Direct employment	126	126
Indirect employment	191	191
Total employment	317	317
Total impact population, 2010 (medium production scenario)	3,429	3,429

Table S-1 Summary Impact Table.

Total cumulative net fiscal balance, 2010 Big Horn County (\$000) ² Custer County (\$000) Powder River County (\$000) Rosebud County (\$000)	4,301 13,721 36,342	4,301 13,721 36,342
² See TRRC ER (1991:4-29).		
TRANSPORTATION	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Number of rail/roadway crossings	10	8
Vehicle delays due to TRRC trains, 2010 Number of delayed trips per day Percentage of trips delayed (%)	23 <2	19 <2
Projected Daily Traffic Volume, 2010		
FAP 37 Junction I-90 to Lame Deer Lame Deer to Ashland Ashland to Junction w/Otter Creek Road to Mines 2 & 3 (FAS 484) Junction w/Otter Creek Road to Mines 2 & 3 (FAS 484) to Broadus	2,494 3,271 2,164 911	2,494 3,271 2,164 911
FAP 39 Forsyth (I-94) to Colstrip Colstrip to Lame Deer	1,572 1,583	1,572 1,583
FAS 484 Otter Creek Road FAP 37 to Mines 2 & 3 (FAS 484)	682	682
Unlocated Mine Road Ashland to Road XX to Mine 5	426	426
FAS 566 Ashland to Montco Birney to Montco Birney south (Junctions w/FAS 314) Four Mile Bifurcation to Junction w/FAS 314 Tongue River Reservoir Bifurcation to Junction w/FAS 314	797 201 101 101 101	797 201 101 101 101
FAS 314 Four Mile Bifurcation's Junction w/FAS 314, to Decker Decker to Sheridan	564 904	564 904
Northern Cheyenne Roads Birney Village to Ashland Birney Village to Lame Deer	430 381	430 381

Table S-1 Summary Impact Table.

SAFETY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
TRRC trains (1995-2010)		
Total grade-crossing accidents	<1	<1
Total derailments	3,459	4,353
Downline impacts ³		
Accidents	589	589
Derailments	797	797
³ See TRRC ER (1991:4-49); TRRC DEIS (1983: Table 4-14).		
ENERGY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Net energy balance, medium coal production scenario (trillions of BTUs, 1995-2010)	4,861.31	4,859.42
TONGUE RIVER DAM	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Nearest location to rail line (mile distance)	1	6
SOILS AND GEOLOGY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Soils with potential for slump (miles)	3.2	4.5
Critical soils affected (acres) ⁴	0	0
⁴ See TRRC ER (1991:4-76)		
HYDROLOGY AND WATER QUALITY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Possible wetland impact locations	7	3
Gross erosion during construction (T/year)	54,200	63,100
Average short-term increase in TSS (mg/l)		
Tongue River	22	23
Otter Creek	19	19
Rosebud Creek	0	0
AQUATIC ECOLOGY		
Number of intermittent stream crossings	98	43
Number of perennial stream crossings	1	1
Number of river crossings	5	1

Table S-1 Summary Impact Table.

	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
TERRESTRIAL ECOLOGY		
Vegetation and wildlife habitat lost due to the right-of-way (acres)	637	781
AIR QUALITY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Construction equipment diesel fuel combustion (T/mile/year)	0.16	0.17
Particulate Matter (TSP)	0.17	0.17
10 Micron Particulates (PM-10)	0.19	0.19
Sulphur Dioxide (SO ₂)	0.51	0.53
Carbon Dioxide (CO)	0.11	0.12
Hydrocarbons (HC)	1.56	1.61
Nitrogen Dioxide (NO ₂)		
Disturbed land during construction (T/mile/year)	1.24	1.21
Construction (PM-10)	1.11	1.06
Windblown dust (PM-10)		
Emission rates from locomotive diesel fuel combustion for the year of maximum operations (T/mile/year, 2010)	0.58	0.69
Particulates (PM-10)	0.61	0.61
Sulphur Dioxide (SO ₂)	2.96	3.52
Carbon Monoxide (CO)	0.65	0.77
Hydrocarbons (HC)	7.09	8.44
Nitrogen Dioxide (NO ₂)		
NOISE	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Sensitive receptors		
500-foot construction contour	28	30
2,000-foot construction contour	51	48
70-dBA contour	0	0
65-dBA contour	14	16
55-dBA contour	51	48
CULTURAL RESOURCES	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Known sites within the right-of-way	8	5
Known sites within 1,500 feet of centerline	44	40

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DECKER, MT Appendix A

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Emergency warning and evacuation plan maps Appendix B

References cited in Tongue River Railroad's Application Appendix C

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Parties receiving copies of draft EIS Appendix E

CHAPTER ONE

1.0 INTRODUCTION

1.1 PURPOSE AND NEED FOR AGENCY ACTION

This draft environmental impact statement (draft EIS) has been prepared in response to an application filed by the Tongue River Railroad Company (TRRC) pursuant to 49 U.S.C. Section 10901 of the Interstate Commerce Act. The TRRC has submitted this application as a request for authorization from the Interstate Commerce Commission (ICC) to extend its permitted Tongue River Railroad line 42 miles south from the rail line's current Terminus Point Number 1, near Ashland, Montana. The extension would connect to operating coal mines in the Decker and Spring Creek area of Montana (Figures 1-1 and 1-2). The TRRC will be a rail carrier transporting principally coal. However, as a common carrier, it would be available to transport other commodities.

TRRC's proposal to construct and to operate a rail line extending from the terminus point of the original alignment to existing coal mines reflects the transportation requirements for the current coal market. The purpose of the extension is to allow the TRRC to carry additional coal traffic originating at the Spring Creek and Decker mines, in addition to possible Burlington Northern Railroad Company (BN) tonnage from existing mines near Gillette, Wyoming. The TRRC plans initially to capture an annual tonnage of about 17-19 million tons through this Spring Creek/Decker gateway. All of the traffic currently moves via the BN's Sheridan-Huntley (Jones Junction)-Miles City-Glendive main line.

TRRC's plan to transport coal from existing mines represents a continuation of its original proposal to transport coal from the Montco Mine and other proposed coal mines near Ashland, Montana. TRRC's ability to serve existing coal mines would likely expedite rail service to presently undeveloped mines in the Ashland-area. The railroad plans to proceed with the transportation of coal from the proposed Montco mine and potential mines in the Cook Mountain and Otter Creek areas. The annual traffic from these mines could total 2 to 18 million tons of coal by the year 2010 (Figure 1-3).

This draft EIS was prepared by the ICC's Section of Energy and Environment (SEE) in accordance with the National Environmental Policy Act (NEPA) and with the ICC's regulations implementing NEPA at 49 C.F.R. 1105. It has also been prepared in accordance with the ICC's regulations implementing the Energy Policy and Conservation Act at 49 C.F.R. 1106. The draft EIS assesses the environmental effects of both the proposed

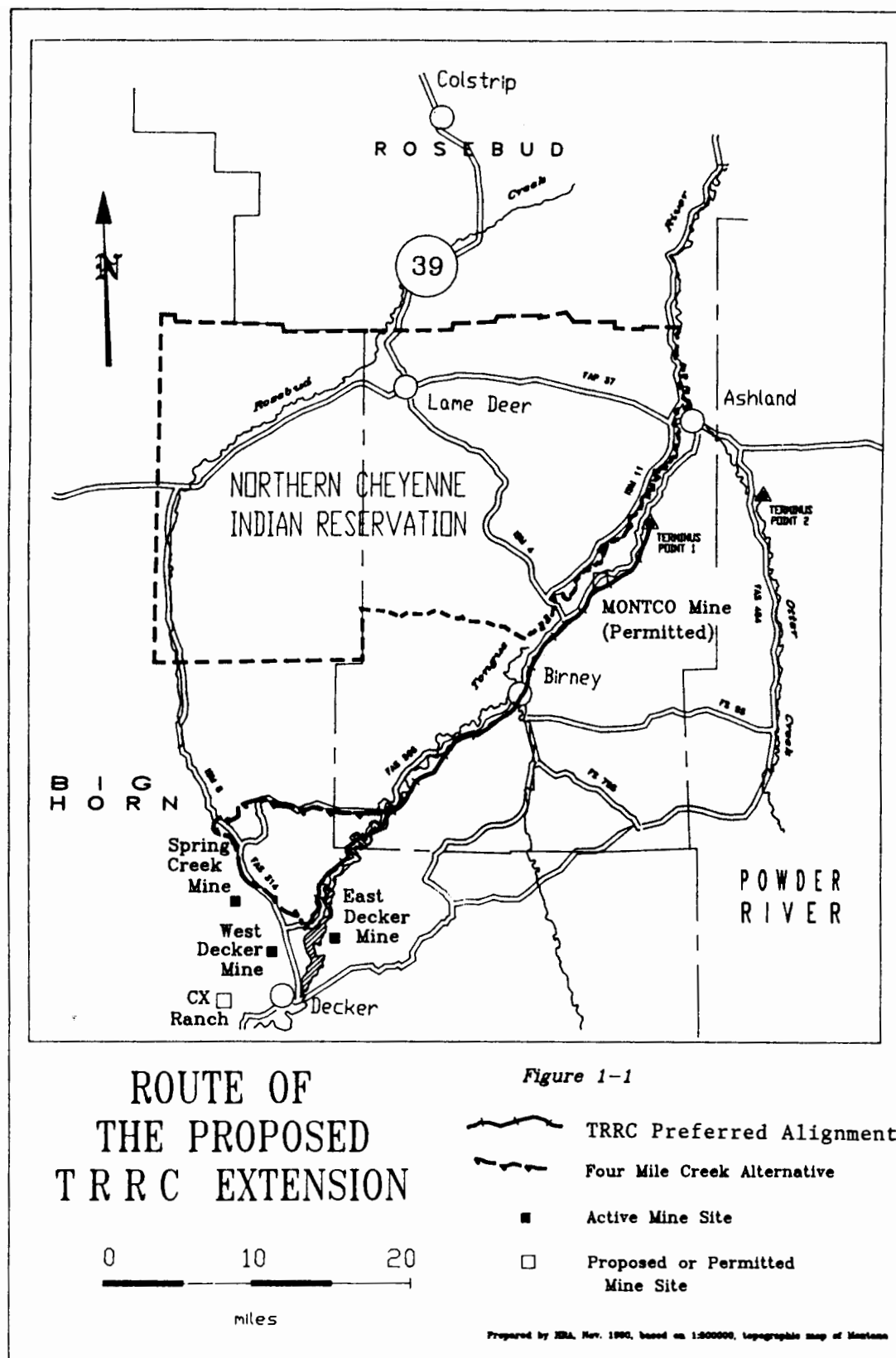
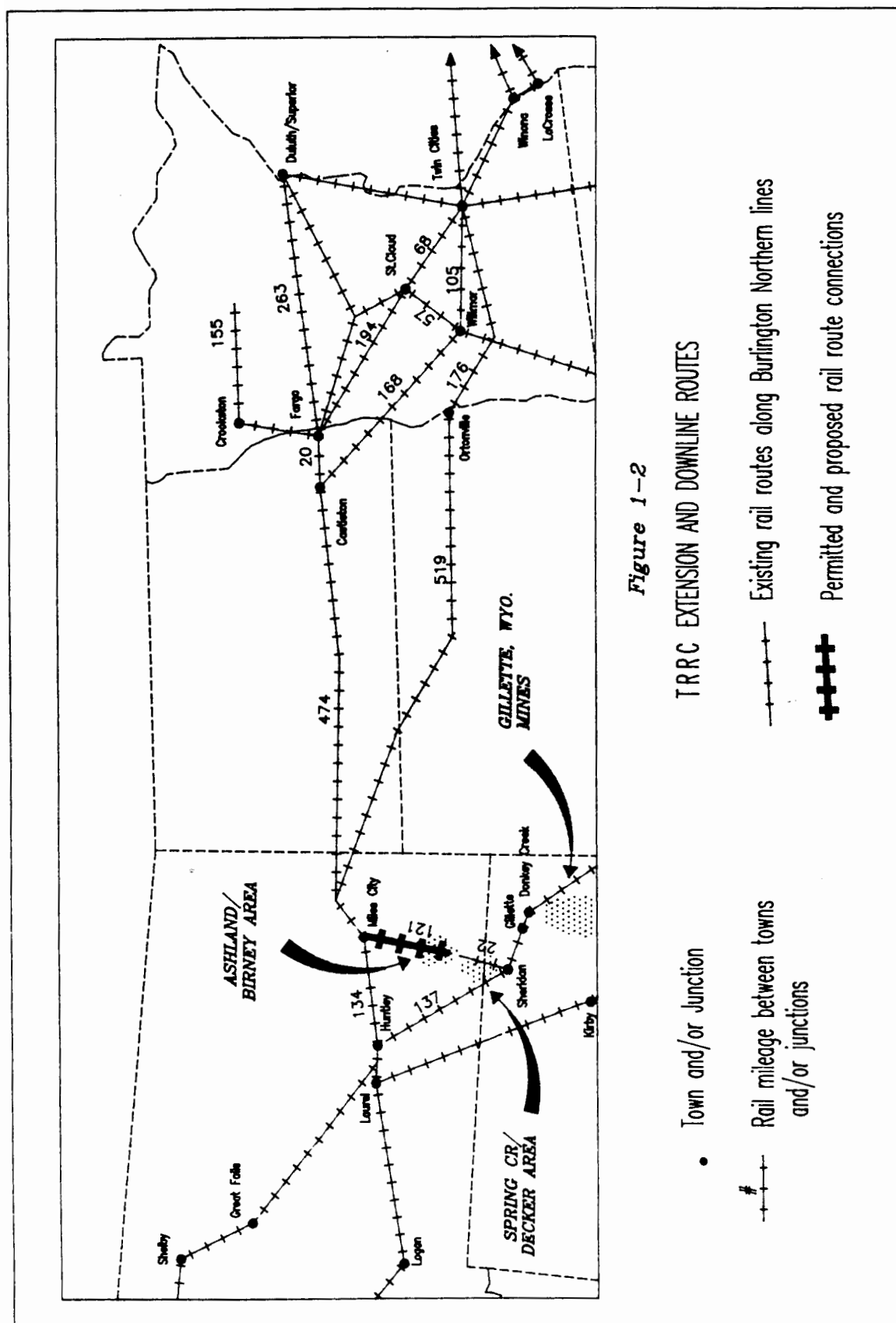


Figure 1-1. Route of the Proposed T R R C Extension.



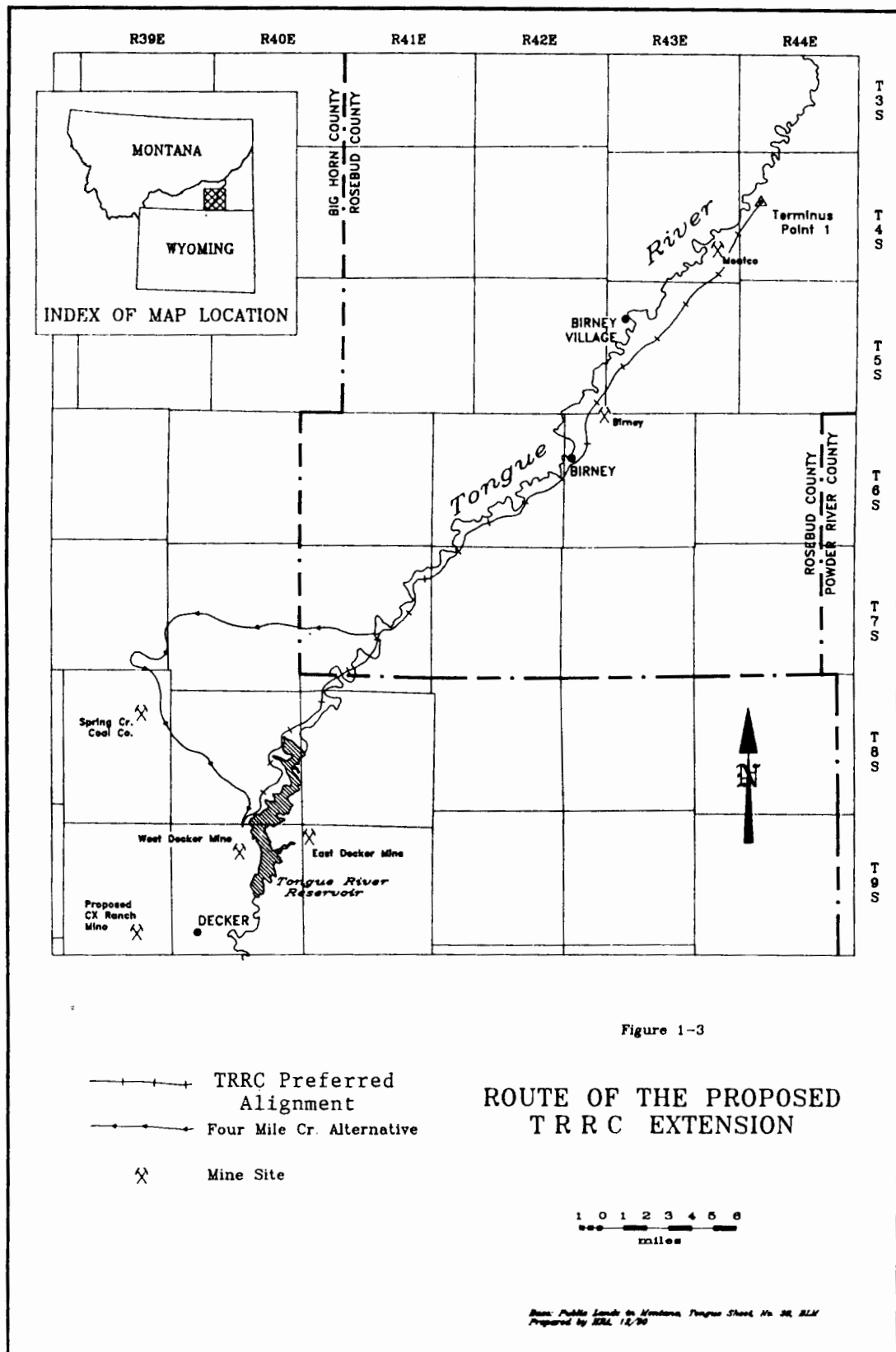


Figure 1-3. Route of the Proposed T R R C Extension.

action and reasonable alternatives to it, as well as the effects of certain related actions. The draft EIS, as well as the final EIS will become part of the official ICC record in the proceeding to grant or deny the Certificate of Public Convenience and Necessity to build and operate the proposed rail line extension. The list of individuals who prepared this document is found in Appendix D.

1.2 FRAMEWORK FOR THE DRAFT EIS PREPARATION

In November 1989, the ICC published in the Federal Register a notice of intent to prepare an environmental impact statement for this proceeding. The notice requested comments both oral and written regarding the scope of study for the EIS at the public scoping meetings held on December 6 and 7, 1989 in Ashland, Montana. Based on the comments from the scoping meetings and other written comments received, a final scope of study was developed and published in the Federal Register in March 1990.

This draft EIS serves to supplement the draft and final environmental impact statements prepared for the TRRC project in 1983 and 1985 respectively (hereafter cited as 1985 TRRC EIS). Approved by the ICC in May, 1986, the original TRRC rail line would extend 89 miles from Miles City to terminus points near Ashland and Otter Creek. This draft EIS assesses the environmental impacts resulting from the construction and operation of a railroad, extending approximately 42 miles from the terminus of the approved rail line near Ashland, to existing trackage near the Decker and Spring Creek Mines. It addresses one proposed alternative, the Four Mile Creek Alternative, a route proposed to replace 10 miles of the proposed route of the TRRC Extension west of the Tongue River Dam with an alternate route of approximately 20 miles along Four Mile Creek (see Figure 1-3). The draft EIS also assesses the relevant environmental impacts associated with the changes in the potential surface-mining operations to be served by both the main and the extended TRRC rail lines, referred to this document as "related actions."

Much of the technical data in this draft EIS was developed by TRRC in its Exhibit H Environmental Report which TRRC filed with its application to the ICC on June 28, 1991. SEE reviewed and verified the TRRC data. The references cited in the Environmental Report are listed in Appendix C.

In preparing this draft EIS, specifically with reference to impacts to Native Americans, SEE is tiering to the report which the U.S. Department of Interior, Bureau of Land Management (BLM) prepared in its analysis of impacts to Native Americans from increased coal mining in the Powder River Basin of Montana. The report is entitled: Draft Economic, Social and Cultural Supplement, Powder River I Regional EIS, published in 1989. The BLM Final EIS was published in June, 1990. Tiering is encouraged by the Council on Environmental Quality in the Council's regulations implementing NEPA (40

CFR 1502.20). As tiering requires, we have briefly summarized relevant information from the BLM report, concentrating on the issues of most concern and of specific interest to this proposed rail line construction and operation.

Because BLM-administered lands will be crossed by the proposed Extension and because BLM has special expertise with respect to environmental issues involved in this project, BLM was designated cooperating agency status in the preparation of this draft EIS.

The ICC retained the consultant service of Ethnoscience (ethnography specialists) to assist the Commission in complying with its responsibilities under the American Indian Religious Freedom Act (AIRFA). Essentially, AIRFA requires Federal agencies to assess the impact of proposed projects on Native Americans and to seek ways to avoid unnecessary interference with tribal cultural values and religious practices. SEE has included in this draft EIS applicable information from Ethnoscience's presented report entitled: "Potential Cultural Effects on the Northern Cheyenne from the Proposed Tongue River Railroad Extension," submitted to the ICC in June 1991.

The draft EIS also relies on information obtained through consultation with affected Native Americans, specifically the Northern Cheyenne. In addition, the draft EIS relies on material contained in the report entitled Final Environmental Impact Statement, Montco Mine, Rosebud County, Montana, prepared by the Montana Department of State Lands and published in 1984.⁴ SEE has included information provided by numerous Federal, state and local government agencies, and information provided by concerned groups, organizations and individuals as well.

This EIS, draft and final, is expected to be used, at least in part, by certain other agencies which have to prepare or review environmental aspects of the proposed rail line. Federal agencies which may have permitting and/or review authority include the Army Corps of Engineers, stemming from its enforcement of the Clean Water Act, the Fish and Wildlife Service stemming from its enforcement of the Endangered Species Act, and the BLM which has permitting authority when Federal lands are involved. The State of Montana agencies with concern and jurisdiction include the Department of Natural Resources and Conservation, the Department of State Lands, and the Department of Fish, Wildlife and Parks. Also, Rosebud and Big Horn county planning commissions will oversee any required local permits.

⁴Montco proposes to operate this mine which is located six miles south of Ashland and would be served by TRRC as part of its already permitted rail line from Miles City to Ashland.

1.3 RELATIONSHIP TO THE ORIGINAL TRRC RAIL LINE

A number of issues addressed in the 1985 TRRC EIS require updating: coal production and coal traffic volumes; wetlands identification; the U.S. Department of Agriculture's Livestock and Range Research Station (LARRS); the Montana Department of Fish, Wildlife, and Parks (MDFWP); and the Miles City fish hatchery. TRRC has updated its projections for the future production of coal to be transported by the railroad. The original proposal relative to LARRS has been agreed to and is incorporated in an easement deed between TRRC and the USDA. As to the Miles City fish hatchery, a proposal is pending with the MDFWP to allow TRRC to cross that facility.

1.3.1 Coal Production and Coal Traffic Volumes

By including the coal traffic of existing mines at Decker and Spring Creek, the TRRC has updated its projections of coal production originally proposed in the 1985 EIS. For the purposes of environmental analysis, the 1985 EIS used the coal projections presented in Table 1-1. TRRC currently proposes to transport tonnages that are within the scenarios used in the 1985 analysis, but would be distributed differently. The estimated new coal production scenario, as well as the related number of trains, is shown in Table 1-2.

Table 1-1. 1985 Coal Production Scenarios (in millions of tons).¹

	LOW	MEDIUM	HIGH
1995/1996	13	15	17
2000/2001	18	25	34
2005/2006	22	31	44
2010/2011	33	38	44

¹ TRRC EIS 1985:3-10, 3-12.

The largest percentage of TRRC's immediate haul, however, would originate from the existing mines at Decker and Spring Creek and, to a much lesser degree, from Wyoming Powder River Basin mines. The adjustment in operations would result in less tonnage being transported from the Ashland area during the analysis period (1996-2010).

The dates for initial mine production reflect a change from 1983. Construction of the Montco Mine has been moved forward to the year 1993. Upon completion of mine construction, TRRC initially would haul two million tons per year from Montco. Other Ashland area mines would not be in operation until the year 2000 and 2010.

Table 1-2 Estimated Coal Production.

Estimated Coal Production & Train Trips/Day (in millions of tons). ¹							
	Estimated Coal Production				Trains / Day		
	Wyoming ²	Existing ³	"Near Mines"	Total	On the TRRC Extension	Originating from the Ashland-Area Mines	On the Entire TRRC Line
1995/1996	3	12	2	17	8	2	10
2000	6	12	8	26	8	4	12
2005	6	15	10	31	10	4	14
2010	6	15	18	39	10	8	18
¹ The projections for coal traffic have been developed in conjunction with the Commission's Section of Energy and Environment, the Bureau of Land Management and the Montana Department of State Lands. Based on the CSI assumptions that each train hauls a 11,615-net-ton load and that trains run 365 days out of the year.							
² Possible diversion of BN traffic from Wyoming mines.							
³ During the initial analysis period, an estimated 2 million tons (MT) of coal could derive from either existing mines at Decker/Spring Creek or from the permitted but not yet operational Montco Mine.							

As mentioned earlier, the Decker/Spring Creek and Wyoming mines would be the principal sources of TRRC coal traffic in the early years. The coal traffic from Decker/Spring Creek and Wyoming mines would remain constant, or slightly increase, throughout the decade following the year 2000 and up to the end of the analysis period in 2010. During that decade, however, the coal traffic from the Ashland area mines would increase from eight million tons in the year 2000 to 18 million tons by the end of the analysis period.

There would be less coal production in the Ashland mines during the analysis period than that developed in the 1985 coal production scenarios. The coal traffic volumes originating from the mines other than Montco would be condensed into one decade, with two additional mines possibly requiring haulage by the year 2000. The final mine would not require haulage until near the close of the analysis period.

Though the sources of the new coal production scenarios have changed, the volume of coal traffic to be hauled on the entire TRRC line, that is the extension from Decker to Ashland and the already-approved line from Ashland to Miles City, is *generally the same as the medium scenario proposed in 1985*. The TRRC 1985 medium scenario was the most realistic projection developed by all the involved parties and high and low projections were extrapolated from it. The environmental impacts which were identified and analyzed in the TRRC 1985 EIS placed most emphasis on the impacts from the medium scenario. Therefore, the impact analysis is adopted from the 1985 TRRC EIS as it pertains to the traffic that will be moving over the already-approved Ashland to Miles City portion of the line. If any changes merit an update to the 1985 TRRC EIS analysis, they will be noted in this document.

For the proposed extension from Decker to Ashland, the analysis is based on the projected new coal production scenarios set out in Table 1-2 which represents TRRC's best traffic estimates and which, as noted above, approximates the former TRRC 1985 EIS medium coal production scenario. As in the TRRC 1985 EIS, where appropriate in this document, we have also reviewed the environmental impacts from the extrapolated high coal production scenario.

CHAPTER TWO

2.1 IDENTIFICATION OF THE AFFECTED ENVIRONMENT

The affected geographic area that is the focus of this draft EIS is the area that may experience impacts from the construction and the operation of TRRC's preferred alignment or the Four Mile Creek Alternative. Additional affected areas that are discussed include: 1) areas which may experience impacts from related actions (i.e., the mining areas in the vicinity of Ashland and the mines of Spring Creek, East Decker, and West Decker); and 2) areas downline (the areas through which the traffic will move when it continues onward on connecting rail lines once it leaves the Tongue River Railroad) which are likely to experience increased train movement because of TRRC-generated traffic.

TRRC's preferred alignment is located in Rosebud and Big Horn Counties. The Four Mile Creek Alternative is located in Big Horn County. Either rail line would serve mines currently operating in Big Horn County. Rosebud and Big Horn Counties would experience the major impacts from the construction and operation of TRRC's preferred alignment or the Four Mile Creek Alternative. The impacted area of the two counties is termed the "project area" in this draft EIS. The draft EIS also references Custer and Powder River Counties since these are the counties involved in the original portion of the line from Miles City to Ashland.

The Northern Cheyenne Indian Reservation, created in 1884, occupies approximately 433,600 acres in Big Horn and Rosebud counties and the reservation's eastern boundary is formed by the Tongue River. Although the proposed Extension right-of-way will not cross the Northern Cheyenne Reservation, it will generally parallel the eastern shore of the Tongue River, within visual range of two communities on the Reservation and traversing possible traditionally important off-Reservation homestead, burial and ceremonial sites. To the west of the Northern Cheyenne Reservation is the Crow Indian Reservation, created in 1868 and encompassing approximately 1.5 million acres in Big Horn, Yellowstone and Treasure Counties, Montana.

The downline routes for the proposed Extension are identical to those discussed in the 1985 TRRC EIS with the exception of the westbound corridor from Miles City to Spokane, Washington. The route that is expected to experience TRRC-generated traffic is the BN line eastbound from Miles City to Minneapolis/St. Paul and Duluth/Superior.

2.2 DESCRIPTION OF THE AFFECTED ENVIRONMENT

TRRC's preferred alignment or its alternative would be located in Rosebud and Big Horn Counties which are expected to incur the major impacts from construction and operation of the rail line. In addition, the two adjacent counties, Powder River and Custer Counties, may experience some impacts. Therefore, the impacted area of the four-county region is termed the "project area" in this draft EIS. This chapter describes the project area, including the Northern Cheyenne Indian Reservation and the Crow Indian Reservation.

2.2.1 Topography

TRRC's preferred alignment and the Four Mile Creek Alternative are located in the Tongue River Basin, a sub-drainage of the Yellowstone River Basin. Originating in the Big Horn Mountains in Wyoming, the Tongue River flows northward into Montana to its confluence with the Yellowstone River near Miles City. It flows through the foothills of the Big Horn Mountains and through plains measuring 2,350 feet in elevation near Miles City.

The Tongue River valley is bordered by hills and porcellanite-capped buttes that rise 200 to 500 feet above the valley bottom. In addition to the Tongue River itself, the Tongue River Reservoir near the Montana-Wyoming border is a major water feature of the basin. Downstream from the reservoir are numerous drainages that are generally ephemeral in nature.

2.2.2 Land Use

Land use in Powder River, Custer, Rosebud and Big Horn Counties is principally devoted to agriculture. Over 90 percent of the land in the Tongue River valley is used for agricultural purposes. As enumerated in the 1985 TRRC EIS, about 90 percent of the agricultural land in the Tongue River valley is used for cattle grazing; about 7 percent is used to raise crops; and less than 3 percent is irrigated cropland. The irrigated land is located along the Yellowstone and Tongue Rivers.

The description in the 1985 TRRC EIS of the family cattle ranch, the predominant agricultural unit in the Tongue River valley, is pertinent to the current situation of family

ranching. The cow/calf operation remains the most common ranch configuration. Large-scale ranching continues to be required for a viable operation.⁵

Although agriculture is the predominant land use in the project area, industrial development in the form of mining and electric-power generating plants is a major land use in Rosebud and Big Horn Counties. In the Colstrip area of Rosebud County, the Big Sky and Rosebud Mines produce about 15 million tons of coal annually. Power plants at Colstrip, which are operated by the Montana Power Company, generate just over 2,000 megawatts of electricity in a year.

The operation of two coal mines at East and West Decker and the Spring Creek Mine dominate the industrial development in Big Horn County. In 1991 the Decker mines produced nearly 10 million tons, while the Spring Creek Mine produced another 7.1 million tons. It is anticipated that most of the coal produced from these mines would be hauled on the Tongue River Railroad to power plants in the midwest.

TRRC's preferred alignment also could affect recreational land use in the Tongue River valley, particularly in two specific areas: 1) the subdivision/resort development proposed at Cormorant Bay, called the Cormorant Estates, and 2) Montana Fish, Wildlife and Parks' state park at the Tongue River Reservoir. Cormorant Estates encompasses land on the east and west shores of Tongue River Reservoir. Sixteen (16) tracts have been platted in this land parcel. Not all of the tracts have been sold and there are three residences that have been constructed on the property.

The Tongue River Reservoir State Recreation Area, administered by the Montana Department of Fish, Wildlife & Parks (MDFWP), provides a diversity of activities: camping, picnicking, boating, fishing, ice fishing, water skiing and waterfowl hunting. The recreation area provides a week-end get-away for many Wyoming residents. The state of Montana has classified the area as a Class II state park relative to future development plans.⁶

In the 1989 System Plan for Montana State Parks, the consultant to MDFWP described the area as poorly maintained with inadequate visitor sanitary facilities. The consultant recommended that, if the site were retained, it should be upgraded to include on-site management, designated roadways and visitor circulation, water-born toilets, and eye-appealing commercial facilities. Since controlling access to the site is a problem with the number of roads diverging from the main county road, the consultant suggested that special attention should be paid to visitor information and control.

⁵ For a discussion of ranching operations, see the 1983 TRRC DEIS, pp. 2-10.

⁶ In 1989 Recreation Management Opportunities, Inc., consultants for the Montana Department of Fish, Wildlife & Parks, proposed a four-level classification system to rank state parks. Class II parks generally met the goal of the system plan and had a minimum, regional appeal.

Recreational potential for fishing, hunting and floating exists along the Tongue River. The segment of the river extending 10 miles north of the Tongue River Reservoir and Dam, in particular, has recreational potential because of scenic canyons and wooded bottomlands. The lack of designated access points, however, limits recreational use of the river. Big game and upland game-bird hunters in the Tongue River Reservoir area also experience access problems, principally because the majority of lands are in private ownership.

2.2.3 Soils and Geology

The predominant geologic unit in the project area is the Fort Union Formation, composed of such sedimentary materials as sandstone, siltstone, shale and coal. Alluvium deposits are found along major river valleys and tributary drainages. Soils along TRRC's preferred alignment and the Four Mile Creek Alternative reflect largely undeveloped profiles. Many of the soils resemble the geologic parent materials.

The soil orders identified in the 1985 TRRC EIS also are located in the vicinity of TRRC's preferred alignment and the Four Mile Creek Alternative: the Entisols of the uplands and the flood plain; the Aridisols of the uplands; and the Mollisols of the stream terraces. Soil characteristics discussed in the 1985 TRRC EIS for the three principal areas of the Tongue River basin -- the uplands, the stream terraces, and the flood plain -- also are apparent in the soils of the three areas found along the proposed Extension and the Four Mile Creek Alternative. Upland soils on steeper slope are highly erodible, while terrace soils are only moderately erodible. Flood plain soils, well-drained and deep, are not prone to erosion. Alkalinity generally is not a problem.⁷

2.2.4 Hydrology and Water Quality

The Tongue River is one of four major interstate tributaries of the Yellowstone River. Arising in Wyoming and flowing northeast through southeastern Montana, the Tongue River joins the Yellowstone River near Miles City, Montana. It drains an area of about 5,379 square miles, 70 percent of which is in Montana. At its confluence with the Yellowstone River, it flows at an average annual rate of about 420 cubic feet per second.

Most of the annual flow of the Tongue River is derived from seasonal snowmelt runoff, with as much as half the annual flow occurring in the period from May to July. The volume of the flow fluctuates with the depth and the water content of the relevant

⁷ See the 1983 TRRC DEIS, pp. 2-2 through 2-3 for a detailed discussion of the soil orders and soil characteristics.

mountain snowpack. The tributaries of the Tongue River, in contrast, experience their most significant flows during and after precipitation events. The tributaries are not provided the consistent flows associated with snowmelt runoff, exhibiting little base flow.

Water quality classification of the Tongue River is designated as "limited" since the river is suitable principally for irrigation water rather than as a source for municipal and domestic water.⁸ In contrast to its prairie-originated tributaries, the Tongue River has good surface water quality because of its reliance on mountain snowpack. The Tongue River Dam also contributes to the high water quality of the Tongue River because it releases clear water downstream in place of the sediment-laden flow that characterizes prairie streams. Water quality decreases downstream from the reservoir, as the Tongue River receives flow from the prairie tributaries and return flow from irrigation users. As mentioned in the 1985 TRRC EIS, the chemical quality of the region's surface water is highest during periods of increased flow, when the physical quality of that water is the lowest, as a result of greater concentrations of suspended sediment.

As identified in the 1985 TRRC EIS, ground water supplies in the Tongue River are derived from Quaternary (alluvium), Tertiary (Fort Union) and Upper Cretaceous (Lance) deposits. Although not high in quality, the groundwater from these sources is used for stock and domestic supplies.⁹

2.2.5 Terrestrial Ecology

2.2.5.1 Vegetation

The vegetation found in the project area is typical of the Northern Great Plains. Adapted to extremes of winter cold and summer drought, the plant species form the vegetation communities, mixed prairie and tallgrass prairie. The principal grass species are mid-grasses with some shortgrasses. Rocky Mountain flora and Great Basin flora species also are represented.

The types of vegetation vary with the variety of the topography: upland areas and high terraces contain shrubland and grassland, interspersed with coniferous forest, while

⁸ The designation of limited water quality indicates that present water quality is below state standards and specified criteria will not be achieved with the application of best practicable wastewater treatment and/or secondary treatment for all point source discharges. Refer to Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). The Yellowstone-Tongue Area-wide Planning Organization has determined that all waters within the 208 planning area are designated "water quality limited."

⁹ See pages 2-3 and 2-4 of the TRRC EIS 1985, for additional discussion relative to hydrology--including water quality and groundwater.

drainages and bottomlands contain deciduous trees and shrubs. Ten general vegetation types are located in the project area:

- (1) The most common vegetation type in the area is big sagebrush/grassland. Big sagebrush is the dominant shrub, with western wheatgrass, bluebunch wheatgrass, needle-and-thread, and green needlegrass being the codominants. This type generally occurs on upland slopes, breaks and mesas.
- (2) The deciduous tree/shrub type, usually dominated by the plains cottonwood, occurs on the Tongue River bottomlands, side drainages, and near seeps where high moisture levels prevail throughout the growing season.
- (3) The silver sagebrush/grassland type dominated by silver sagebrush, western wheatgrass and green needlegrass, is commonly associated with drainage bottoms and river terraces.
- (4) The greasewood/grassland type, dominated by greasewood and western wheatgrass, occurs on localized sites on the Tongue River flood plain and on upland sites where saline soils exist.
- (5) The skunkbrush sumac/grassland type occurs on steep slopes with thin, coarse soils, often in proximity to the coniferous type.
- (6) The prairie vegetation type is comprised of grassland plant communities, which occur primarily on slopes, terraces, and sidehills.
- (7) The pine/juniper is dominated by Ponderosa pine and Rocky Mountain juniper, with associated grass species.
- (8) The breaks type is found on steep, highly eroded slopes and is variable in vegetation composition.
- (9) The agricultural types of vegetation include dry and irrigated croplands, haylands, and tame pastures.
- (10) The aquatic type consists of cattails, bullrushes, wet-site sedges, horsetails, rushes and other emergent and semi-emergent species.

Tongue River vegetation has been influenced by grazing and other agricultural land uses. General rangeland types of vegetation are classified Badlands grassland and southeastern grassland. Climate, topography, soils, and the type of forage available dictates the rangeland's carrying capacity. No threatened nor endangered plant species have been identified in the Tongue River Valley region.

2.2.5.2 Terrestrial Wildlife

The project area includes the Tongue River bottomlands and side drainages, which provide year-round habitat for numerous species of wildlife. Wildlife populations utilizing the wide range of habitats along Tongue River are diverse. Beginning in the mid-1970s, and, in some instances, continuing to date, detailed wildlife baseline and monitoring studies have been conducted for existing and proposed coal mines north and south of the project area (Montco Mine, East and West Decker Mines, Spring Creek Coal Mine (NERCO), CX Ranch Mine (Consolidation Coal Company). However, the project area from Birney to the Spring Creek Mine site and the Decker Mine sites (approximately 28 miles) have not been formally surveyed for wildlife. Although wildlife information exists for this section of the project area, it is more general than for other areas.

During wildlife surveys conducted on the Montco study area from 1978 to 1989, 166 bird species, 36 mammal species, 8 reptile, and 4 amphibian species were recorded. For the CX Ranch Mine project area on Squirrel Creek and the Tongue River south of the southern TRRC terminus, 155 bird, 44 mammal, 10 reptile, and 4 amphibian species were recorded during baseline and monitoring studies from 1979 to 1986. Bird species found in Montana have been listed by latilong, the area between adjacent parallels of latitude and meridians of longitude. The latilong that includes the TRRC project area is number 43 (of 47 in Montana). Within this latilong, recorded observations of bird species totalled 215. Of these, 132 species are expected to breed in the latilong and 60 species are expected to overwinter there. Mammal, reptile, and amphibian species of Montana have also been listed by latilong. In latilong 43, 46 mammal, 11 reptile, and 6 amphibian species are listed.

Habitat requirements for wildlife species on the project area are met by combinations of topography and vegetation types. Wildlife habitat types are based on existing vegetation and correspond to the vegetative types described in section 2.2.5. Wildlife species most commonly observed in the project area are described below.

Mule Deer

Mule deer are the most common big game animal in the project area, as they are throughout southeast Montana. The mule deer herds have been described generally, as essentially non-migratory, utilizing different habitats in the same general area throughout the year. Seasonal distribution of mule deer in wildlife habitats along the Tongue River varies little, with the exception of late summer and early fall. During most of the year, deer use the habitats associated with the uplands and breaks areas. Thermal and escape cover in the form of ponderosa pine and juniper is intermingled in these areas with the abundant forage of shrubby coulees, seeps, and grasslands. South and southwest aspects, which melt or blow free of snow provide adequate wintering areas, as do haystacks in the agricultural areas along the riverbottom. During the heat of summer months, when upland vegetation becomes desiccated, mule deer numbers are greatest in the lower coulees where they seek

cover during the days and feed in moist areas or irrigated haylands during the nights. At this time of year, there is greater daily movement of deer between the upland areas and the Tongue River bottomland.

White-tailed Deer

White-tailed deer observations are concentrated in the Tongue River agricultural and riparian areas on a year-round basis. Timbered upland and coulee vegetative types are also used by white-tailed deer. Numbers of observations along the Tongue River decline rapidly as riparian vegetation (primarily willow) thins upstream of the Canyon Creek-Tongue River confluence. The lack of dense cover provided by the willows apparently restricts deer use of the riverbottoms upstream of this confluence. Primary wintering areas for white-tails are in the riverbottom.

Pronghorn

Pronghorn in the vicinity of the project area are found in greatest numbers on benchlands south of Four Mile Creek, including Post Creek, Leaf Rock Creek, Monument Creek and Spring Creek. Pronghorn are reported to winter in the area, and migrate seasonally, with some animals moving between the Tanner Creek area and the Spring Creek area. A pronghorn doe marked by the U.S. Fish and Wildlife Service near Decker was observed north of Birney in 1979. Other records have been made of Decker area animals moving 70 miles or more, primarily to or from winter ranges. There is occasional use of the project area along the riverbottom downstream of the reservoir by pronghorn crossing the Tongue River during winter months.

Upland Game Birds

Sharp-tailed grouse and sage grouse are species native to this part of Montana. Ring-necked pheasant, gray (Hungarian) partridge, and Merriam's turkey have been introduced to the area. All occur in huntable populations and breed on or near the project area. No native grouse dancing grounds (lekking areas) are known to occur immediately on the extension right-of-way. Turkey populations have expanded rapidly in southeast Montana in the last ten years, and the Tongue River area is no exception. Large numbers of turkeys winter on many of the ranches between Birney and the Tongue River Dam.

Waterfowl

Eighteen species of waterfowl have been recorded on or near the project area, although not all are commonly found there. These are: Canada goose, white-fronted goose, mallard, gadwall, pintail, green-winged teal, blue-winged teal, American widgeon, northern shoveler, wood duck, redhead, ring-necked duck, lesser scaup, common goldeneye, bufflehead, ruddy duck, hooded merganser, common merganser.

Raptors

Twenty-three species of raptors have been observed in the vicinity of the project area excluding shrikes and members of the family Corvidae. Not all species, however, are

commonly found in the region. These are: turkey vulture, goshawk, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, Swainson's hawk, rough-legged hawk, ferruginous hawk, golden eagle, bald eagle, northern harrier, osprey, gyrfalcon, prairie falcon, peregrine falcon, merlin, American kestrel, screech owl, saw-whet owl, great-horned owl, burrowing owl, long-eared owl, and short-eared owl.

Bald eagles are known to winter along the open water areas of the Tongue River. Recent survey data indicate that there are two active bald eagle nests in the Tongue River valley. One nest was recently located approximately 8 miles north of the Tongue River Dam. Both nests have been reported to the U.S. Fish and Wildlife Service and to the Montana Department of Fish, Wildlife and Parks and have been assigned location numbers.

Other Mammals

Many species of small mammals have been trapped or observed in the vicinity of the project area. These include: masked shrew, little brown myotis, long-eared myotis, small-footed myotis, silver-haired bat, hoary bat, western big-eared bat, thirteen-lined ground squirrel, least chipmunk, red squirrel, fox squirrel, northern pocket gopher, olive-backed pocket mouse, Ord kangaroo rat, western harvest mouse, deer mouse, white-footed mouse, bushy-tailed wood rat, meadow vole, prairie vole, sagebrush vole, mountain vole, long-tailed vole, meadow jumping mouse, house mouse. The most commonly trapped species were deer mice.

White-tailed jackrabbit, desert cottontail, mountain cottontail, black-tailed prairie dog, yellow-bellied marmot, and porcupine are also common residents of the area. Bobcat, beaver, muskrat, raccoon, long-tailed weasel, mink, and otter have been recorded on or near the project area. In addition, coyote, red fox, striped skunks, and badgers are seen frequently on or near the project area.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service (FWS) and the ICC in consultation pursuant to Section 7 (c) of the Endangered Species Act, have determined that bald eagles, peregrine falcons, and blackfooted ferrets are "species of concern" within the project area. The most documented use of habitat by bald eagles in the area is the 10-15 mile section of the Tongue River north of the Tongue River Dam. Recent aerial survey counts found as many as 50 bald eagles along the Tongue River between Miles City and the upper end of the Tongue River Reservoir. According to Montana Department of Fish, Wildlife and Parks, this count probably reflects an influx of spring migrating eagles and is not indicative of normal use. A more typical average count for bald eagles frequenting the Tongue River valley would be between 10 and 15 eagles.

There is potential peregrine falcon nesting habitat in the cliffs between Ashland and Birney. However, only one peregrine falcon sighting has been recorded -- that being in March of 1979 during the preparation of the Montco Mine baseline study.

There have been no documented sightings of black-footed ferrets in the project area. Since effects to prairie dog towns, however, represent potential effects to black-footed ferrets, the density and distribution of prairie dogs in the area affected by the proposed actions should be determined. One or more black-tailed prairie dog towns of various sizes north of Birney exist within the ROW of TRRC's preferred alignment and the Four Mile Creek Alternative. Others may be found along either alignment.

A recent prairie dog inventory conducted by the BIA and Northern Cheyenne Tribe on the Northern Cheyenne Indian Reservation identified and mapped a 10,000-acre prairie dog complex along the eastern boundary of the reservation. Although the river intervenes between the reservation and the proposed ROW, FWS has raised the possibility "that any prairie dog towns lying 'north of Birney' that would be impacted by the railroad may be part of this large complex."

2.2.6 Aquatic Ecology

2.2.6.1 Fishery Resources, Tongue River Reservoir

In Montana, the flow of the Tongue River is controlled by the Tongue River Dam. The Dam, completed in 1936 for storage of irrigation water, impounds 69,000 acre feet (AF) of water with a surface area of 3,500 acres. Tongue River Reservoir supports a cool water fishery that is primarily self-sustaining. Research completed in 1977 found that fish populations, with the exception of those for northern pike (*Esox lucius*), are healthy and reproducing. Black and white crappie (*Pomoxis nigromaculatus* and *Pomoxis annularis*), largemouth and smallmouth bass (*Micropterus salmoides* and *Micropterus dolomieu*), walleye (*Stizostedion vitreum*), and sauger (*Stizostedion canadense*) are reproducing. Currently, only walleyes are supplemented with hatchery stock.

Spawning habitat for northern pike in the Tongue River Reservoir is limited. Pike prefer shallow, weedy bays and marshes for spawning and these are rare in this reservoir. However, MDFWP now plants northern pike in the reservoir. The other game fish found in the reservoir (walleye, sauger, crappie and bass) spawn in areas disbursed around the reservoir.

A creel census conducted in 1975 and 1976 found that an estimated 2,802 anglers expended 12,522 hours of fishing pressure on the reservoir in 1975. In 1976, the pressure increased to 3,315 anglers and 20,053 hours. MDFWP estimated that the Tongue River Reservoir provided 19,857 angler days during the 1989-1990 fishing year. Though this is a comparatively low level of angler pressure, the Tongue River Reservoir has produced the state record black crappie (in 1973), northern pike, (in 1972), rock bass (in 1989), sauger (in 1975), and white crappie (in 1978).

2.2.6.2 Fishery Resources, Tongue River

Physical Habitat

The Tongue River drains an approximately 5,379 square mile area, 70% of which is in Montana, with an average annual discharge of approximately 420 cfs at the mouth. The two typical streambed formations are: 1) in strong current, gravel, cobblestones, and outcroppings of bedrock, and 2) in slack or slow current, silt and sand. Gravel is generally the most common substrate type. The Tongue River probably contains a lower amount of silt than most prairie streams because of the Tongue River Dam. Clear water released below the dam in place of the sediment laden flows that is typical of prairie streams has probably caused erosion of the channel and lowering of the streambed below the dam.

Pools and runs are the most common habitat types. In 1980 a survey found over 50% of the reach between Otter Creek and Hanging Woman Creek to be composed of runs. Specific conductance ranges from 280 to 1310 umbos/cm in the area between Hanging Woman and Otter Creeks and the Ph ranges from 7.7 to 8.7.

Fishery Resources

Studies in 1977 divided the Tongue River downstream from the Tongue River Dam into five zones based on habitat and species composition (Figure 2-1). These zones are defined in Table 2-1. Each zone has unique fishery characteristics. The longitudinal distribution of fish is influenced by irrigation structures, hence the boundaries of several zones are defined by irrigation structures. Table 2-2 lists the species of fish found in each zone and in the Tongue River Reservoir. Construction activities for the proposed TRRC Extension would be confined to only 2 fisheries zones (IV and V). MDFWP estimated that these two zones of the Tongue River provided approximately 5,817 angler days during the 1989-1990 fishing year.

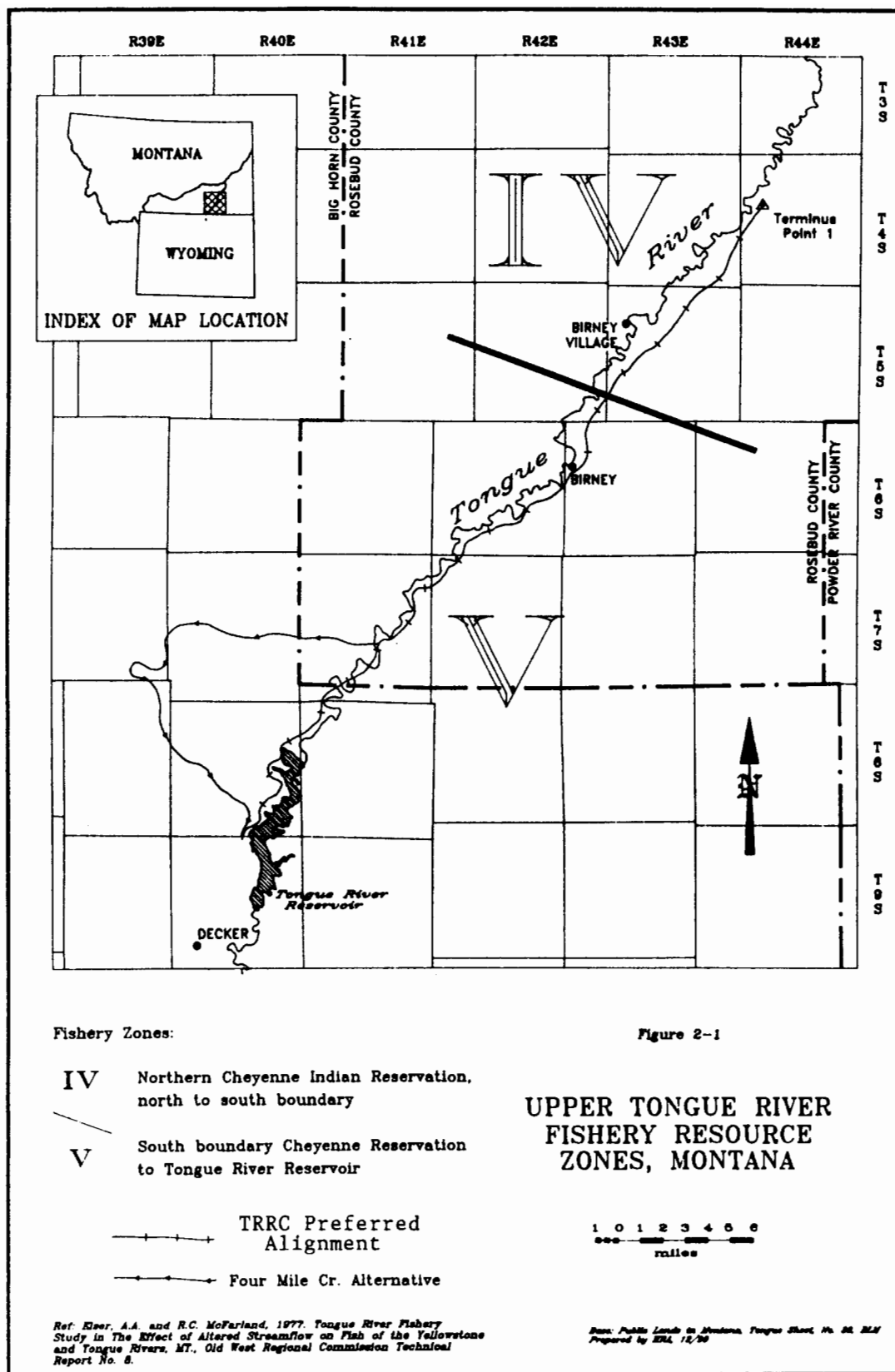


Figure 2-1. Upper Tongue River Fishery Resource Zones, Montana.

Table 2-1. Fisheries zones in the Tongue River.¹

STREAM REACH	UPPER BOUNDARY	LOWER BOUNDARY
Zone V	Tongue River Dam	Brewster's Dam
Zone IV	Brewster's Dam	Mobley's Dam
Zone III	Mobley's Dam	S-H Dam
Zone II	S-H Dam	Pumpkin Creek
Zone I	Pumpkin Creek	mouth

¹ Adapted from Elser et al. 1977.

Table 2-2. Tongue River Reservoir and Tongue River Fishes.¹

	TONGUE RIVER ZONES					TONGUE RIVER RESERVOIR
	V	IV	III	II	I	
Brown Trout	*					*
Whitefish	*					
Northern Pike	*	*				*
Yellow Perch	*	*				*
Black Crappie	*	*				*
Yellow bullhead	*	*				*
Rainbow trout	*	*	*			*
Rock bass	*	*	*	*		*
Mountain sucker	*	*	*	*		
Pumpkinseed	*	*			*	*
Smallmouth bass	*	*		*	*	*
White crappie	*	*		*	*	*
River carpsucker	*	*	*	*	*	
Carp	*	*	*	*	*	*
Stonecat	*	*	*	*	*	*
Shorthead redhorse	*	*	*	*	*	*
White sucker	*	*	*	*	*	*
Longnose sucker	*	*	*	*	*	*
Longnose dace	*	*	*	*	*	*
Black bullhead		*	*			*
Green sunfish		*	*	*		*
Channel catfish		*		*	*	*
Sauger	*	*	*	*	*	*
Flathead chub		*	*	*	*	
Goldeye					*	

Table 2-2. Tongue River Reservoir and Tongue River Fishes.¹

	TONGUE RIVER ZONES					TONGUE RIVER RESERVOIR
	V	IV	III	II	I	
Burbot					*	
Walleye					*	*
Paddlefish					*	
Shovelnose sturgeon					*	
Blue sucker					*	
Sturgeon chub					*	
Golden shiner						*
Goldfish						*
Largemouth bass						*
TOTAL NUMBER OF SPECIES	19	22	14	15	20	23

¹ Elser, et. al 1977.
NOTE: Common names of fishes correspond to those presented by the American Fisheries Society (1970). See Table 2-1 for the definition of zones.

The most abundant fish in the Tongue River is the shorthead redhorse (*Moxostoma macrolepidotum*). Other species of sucker are also found. A complete listing of the fish species found in the Tongue River is given in Table 2-2.

In Zone V, the deepwater withdrawal system of the Tongue River Dam releases cool hypolimnetic waters to the Tongue River. Directly downstream of the dam, the river supports a trout fishery. MDFWP annually stocks the Tongue River with hatchery raised rainbow trout (*Oncorhynchus mykiss*) in the area below the dam. There is a small amount of overwinter survival of these fish. There is also a very small brown trout (*Salmo trutta*) population that lives in this section of the river that is not supplemented by stocking.

The water gradually warms downstream and the fishery changes into a more typical prairie stream system. The primary game fish in the Tongue River is smallmouth bass (*Micropterus dolomieu*). Smallmouth bass are relatively new to the system, having been introduced around 1970 in the Birney area. They have since spread throughout the river system and are the most sought after fish by anglers.

Although most studies have found smallmouth bass to be a sedentary species, Tongue River smallmouth bass have been found to exhibit a marked tendency to move long distances at two specific times of the year. During the spring (April and May), individuals larger than 12 inches move upstream, some as far as 50 miles. This movement is probably related to the nesting season. Hanging Woman Creek and Otter Creek are used by these fish in the spring for nesting.

By September and October, smallmouth larger than 12 inches have moved downstream. A high proportion of these fish move into a short reach of river with boulder substrate, resulting in a concentration of fish in the fall.

The year class strength of smallmouth bass varies depending upon the environmental conditions on young of the year fish. Low temperatures during nesting and post nesting periods is detrimental to that year's survival. Other factors that have been cited as affecting survival are silt, fungus, predation, diseases, starvation, wind, and floods. Smallmouth bass spawning in the Tongue River typically occurs in late May and the fry emerge in about two weeks.

Northern pike (*Esox lucius*) are popular game fish in the Tongue River. They utilize Hanging Woman Creek for spawning in April and May.

Zone I of the Tongue River is utilized by Yellowstone River burbot (*Lota lota*), paddlefish (*Polydon spathula*), shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), and blue sucker (*Cycleptus elongatus*) for spawning purposes in the spring. They are considered to be migrant species in this zone. The T & Y diversion is the upper limit of distribution for these species and also for goldeye (*Hiodon alosoides*) and walleye (*Stizostedion vitreum*).

Invertebrate fauna

Macroinvertebrates are abundant in the Tongue River and its tributaries. The invertebrate communities in these streams are similar to those in warm water streams throughout southeastern Montana. The most significant change in community structure occurs in the upper reaches of the Tongue River, where the fauna is influenced by cold water discharges from the Tongue River Dam. This influence decreases downstream and the faunal changes are more gradual. The turbidity of the lower portion of the Tongue River affects the relative abundance of certain species, with the most tolerant forms dominating.

Periphyton

Green algae *Cladophora* is abundant in the Tongue River during fall, while diatom species are prevalent in the spring. Bluegreen species *nostoc* are the dominant periphyton in lower reaches of the Tongue, where turbidity is high. Community analysis suggests that the Tongue River is indicative of low to moderately enriched hardwater environments, with comparable low productivity.

2.2.7 Social and Economic

Baseline socioeconomic information was updated for the project area within the four county area. In addition, information on Sheridan, Wyoming has been included in this section because, with the Extension, TRRC would divert coal currently hauled to Miles City

via Sheridan and Forsyth over the new line from the Decker/Spring Creek area north to Miles City.

Population

Big Horn, Custer, Powder River and Rosebud Counties had a population of approximately 35,629 in 1990, a decline of approximately 3 percent from 1980. The greatest population change was centered in Powder River County, which decreased 17 percent. Big Horn County's population increased by 2 percent between 1980 and 1990; Custer County's population decreased by 11 percent; Rosebud County's population increased by 6 percent (Table 2-3).

Table 2-3. Population Estimates 1980-1990.

YEAR	BIG HORN COUNTY	CUSTER COUNTY	ROSEBUD COUNTY	POWDER RIVER COUNTY
1980	11,096	13,109	9,899	2,520
1985	11,600	13,400	12,600	2,400
1990	11,337	11,697	10,505	2,090
PERCENT CHANGE 1980-1990	2.2 %	- 10.8 %	6.1 %	- 17.1 %
Source: U.S. Bureau of the Census. Local population estimates, estimates of the population of Montana counties and metropolitan areas, July 1, 1981 to 1985. U.S. Bureau of the Census, provisional 1987 county population estimates for Montana; Montana Department of Commerce, CEIC 1989; personal communications with various county officials, 1990.				

Custer County has the largest population and the highest population density. The Northern Cheyenne Indian Reservation comprises twenty percent of the Rosebud County population. The 1986 population of the Northern Cheyenne Reservation was estimated to be 4,308, including that portion of the Reservation in Big Horn County. Median age on the Reservation is 19.1 as compared to the median age of 29.6 in Montana and median ages of 25.1 to 28.4 in the four county area.

Baseline population projections for the four counties for the period 1990 to 2010 predict slight percent population increases in Big Horn (9%) and Custer (8%) Counties; a large percent increase in population in Rosebud County and a decrease of 3 percent for Powder River County (Table 2-4). The estimate for population increase in Rosebud County, however, may not be as high as predicted earlier, given the 1990 census figured slightly more than 10,000 residents of that county.

Table 2-4. Baseline Population Projection 1990-2010.

YEAR	BIG HORN COUNTY	CUSTER COUNTY	ROSEBUD COUNTY	POWDER RIVER COUNTY
1990	10,950	12,590	12,930	2,200
1995	11,150	12,750	14,080	2,140
2000	11,390	12,980	15,050	2,120
2005	11,660	13,250	15,870	2,120
2010	11,920	13,530	16,570	2,140
Projected Percent Change	9%	7%	28%	-3%
Source: NPA Data Services, Inc. 1988 Regional Economics Projections Series: Economic Data, Computer Tape; Montana Department of Commerce, CEIC 1989.				

Employment

The four counties differ in terms of employment characteristics: Big Horn County in 1980 had twice as many mining jobs as agricultural jobs; Custer County has agriculture as a major source of basic employment along with government employment and trade and service sectors; Powder River County has agriculture as a source of basic employment; Rosebud County's primary source of employment is related to energy development.

Per capita income in 1989 in the four county area increased from 1987 levels, although it is below the Montana average of \$9,322. The percent change for per capita income from 1981 to 1989 for the four counties is shown in Table 2-5.

Table 2-5. Per Capita Income Estimates for 1989 Compared to 1981.

	1981	1984	1989	Percent Change, 1981 to 1984	Percent Change, 1984 to 1989	Percent Change, 1981 to 1989
Big Horn	\$ 9,103	\$ 8,914	\$ 12,215	-2.08	37.03	34.19
Custer	\$ 10,399	\$ 11,690	\$ 13,957	12.41	19.39	34.21
Powder River	\$ 10,865	\$ 9,624	\$ 14,186	-11.42	47.40	30.57
Rosebud	\$ 10,237	\$ 9,166	\$ 11,611	-10.46	26.67	13.42
State of Montana	\$ 9,875	\$ 10,835	\$ 14,149	9.72	30.59	43.28
Source: Per Capita Personal Income, Earned and Unearned Income, U.S. Department of Commerce, Bureau of Economic Analysis, Montana Department of Commerce, CEIC.						

Governmental Structure

Local government in the four counties is directed by three-person county commissions. Miles City, Forsyth and Broadus are the only incorporated communities in the area, and rely on a part-time mayor/city council system. All four counties have part-time or full-time planning staffs. County-wide planning documents have been prepared for all four counties.

The major source of revenue for county and city governments is the property tax. Other sources of revenue are intergovernmental transfers, and miscellaneous collections including license fees, permit fees, fines, and user charges. Intergovernmental transfers include coal severance taxes. Part of the severance taxes are administered by the Montana Coal Board, which allocates monies among areas adversely impacted by coal development.

Local services within the study area are provided by each county, with the exception of Miles City, which has its own fire and police departments. Forsyth has a consolidated police and sheriff's office. Deputy sheriffs generally are located throughout the county, as are ambulance services and volunteer fire departments. Communication and emergency service dispatching are handled jointly for police, fire, and ambulance service in each county. Miles City and Forsyth each have a private hospital, and clinics are located in Colstrip and Broadus. However, the number of physicians per capita is well below the national average. Libraries are located in Miles City, Forsyth, and Broadus.

Social welfare services are available in each of the four counties. Rosebud County workers had case loads exceeding state standards in 1982. The highest service incidence in Rosebud county involved protective service investigation and ongoing protection. Powder River County currently displays a very low incidence of demand for such services, with only one worker serving the county on a part-time basis. Reasons for this low utilization are not clear, but an increase in demand would likely require at least one full-time worker.

Schools

In addition to general service government areas, the project area is also divided into several high school and elementary school districts (kindergarten through eighth grade). Education is financed by district property taxes and by the state school-foundation program. Enrollment for schools in the project area is shown in Table 2-6. Enrollment in Broadus Elementary and Powder River High School have declined from 1980 to 1990. Custer High School enrollment has declined by 118 students or 15 percent increase from 1980 to 1990. Colstrip elementary school totals have increased enrollment by 483 students, or a 102 percent increase from 1980 to 1990. Birney elementary has increased enrollment by 15 students, which is a 750 percent increase from 1980 to 1990. All of the other schools have maintained fairly stable enrollments (see Table 2-6).

Table 2-6. Enrollment Figures for Schools Potentially Impacted by TRRC and Related Activities (1980-1990).

Schools by County	YEARS										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
BIG HORN COUNTY											
Squirrel Creek Elem.	7	8	8	5	5	6	8	10	15	11	10
Big Bend Elem.	9	10	8	6	6	5	3	2	5	5	4
CUSTER COUNTY											
Miles City Dist. #1	1258	1322	1330	1345	1403	1388	1408	1381	1345	1345	1,338
Custer County H.S.	687	628	588	581	599	621	729	702	657	649	625
POWDER RIVER COUNTY											
Broadus Elem.	271	257	273	277	263	264	237	225	217	195	196
Powder River County H.S.	192	180	156	169	164	146	160	147	146	192	123
ROSEBUD COUNTY											
Birney Elem.	9	12	10	19	15	10	19	17	16	17	18
Colstrip Dist. #19	606	848	1122	1137	953	985	1044	971	942	957	955
Colstrip H.S.	292	322	407	452	419	444	457	430	428	459	453
Ashland Elem.	162	131	118	131	121	108	119	110	103	92	102
Forsyth Dist. #4	518	570	590	631	556	515	546	505	500	484	585
Forsyth H.S. Dist. #4	205	202	209	211	218	230	225	215	197	210	232
Source: Office of Public Instruction Montana Public School Enrollment Data 1980-1990.											

The operation and maintenance costs for students in the study area vary. In 1990, operation and maintenance costs for elementary schools ranged from a high \$5,221 at Squirrel Creek Elementary in Big Horn County to a low of \$3,164 for Miles City District #1 elementary schools. Operation and maintenance costs for high schools in the study area ranged from \$4,287 for Forsyth High School to \$7,382 for Powder River High School (Table 2-7).

Table 2-7. Operation and Maintenance Costs for School Districts Within the TRRC Impact Area, (1981, 1988-1990).

	1981		1988		1989		1990	
	TOTAL	COST/ STUDENT	TOTAL	COST/ STUDENT	TOTAL	COST/ STUDENT	TOTAL	COST/ STUDENT
BIG HORN COUNTY								
Squirrel Creek Elem.	*	*	40,059	2,670	55,518	5,047	52,210	5,221
Big Bend Elem.	*	*	22,211	4,442	22,239	4,447	23,042	5,761
CUSTER COUNTY								
Miles City Dist. #1	3,106,700	2,350	3,946,565	2,935	3,985,425	2,981	4,232,940	3,164
Custer County H.S.	1,684,296	2,682	2,594,669	3,949	2,606,049	4,017	2,799,881	4,480
POWDER RIVER COUNTY								
Broadus Elem.	695,185	2,705	853,434	3,932	829,116	4,252	853,896	4,357
Powder River H.S.	845,640	4,698	918,186	6,283	812,567	4,232	907,963	7,382
ROSEBUD COUNTY								
Birney Elem.	41,964	3,497	56,774	3,548	53,060	3,298	57,946	3,219
Colstrip #19	2,500,752	2,949	4,288,927	4,554	4,448,195	4,553	4,960,769	5,195
Colstrip H.S. #19	1,458,660	4,530	2,481,837	5,799	2,632,364	5,735	3,101,701	6,847
Ashland Elem.	351,735	2,685	450,490	4,374	442,111	2,988	459,371	4,504
Forsyth #4	1,143,990	2,007	1,447,401	4,895	1,446,328	2,988	1,511,110	2,583
Forsyth H.S. #4	697,708	3,454	950,207	4,823	933,346	4,444	994,669	4,287
* Data unavailable. Source: OPI unpublished data; Tongue River RR DEIS, 1983.								

Recreation

The most important recreational outlets in the study area are outdoor activities and community or school events such as plays, dances and athletics. The larger communities provide some public recreational facilities, and limited commercial recreational facilities are also available.

Hunting, fishing, hiking and picnicking are the most important outdoor activities. Residents rely on developed and undeveloped recreation sites along the Tongue River and on nearby national forest lands for much of their outdoor activities. These resources currently have low levels of utilization.

In the smaller communities, most social activities are centered around local schools. All age groups are generally involved and total family participation is common.

Sheridan, Wyoming

Although Sheridan, Wyoming is outside the project area, information on Sheridan is included as the TRRC Extension could affect that area. Sheridan County experienced a decrease in population between 1980 and 1990. The population in 1980 was 25,048 and in 1990 it was 23,562. The population of the city of Sheridan in 1980 was 15,146 and in 1990 it was 13,900. Sixty percent of the county population resides in the city of Sheridan.

Employment

In 1991, Sheridan County had an average work force of 13,006. The unemployment rate in 1991 averaged 5.52 percent. Per capita income in 1989 was \$15,173. The five largest areas of employment are: service related (3,152); retail (1,824); construction (480); public administration (469); and manufacturing (406). Major employers include: the Veteran's Administration Hospital (475); the Burlington Northern Railroad (375); Sheridan County School District #2 (500); Sheridan County Memorial Hospital (245); the city of Sheridan (133); the county of Sheridan (104); Sheridan College (280); Wyoming Sawmills (226); Decker Coal Company (342); Spring Creek Coal Company (171); Big Horn Coal Company (26); Wal-Mart (150); and Holiday Inn (120).

Sheridan County is governed by three county commissioners. The City of Sheridan has a mayor and city council. There are 38 full-time police officers, 19 full-time firemen and 5 volunteer firemen. The 1991-1992 operating budget for Sheridan County is \$6,683,106. The city budget is \$11,500,000 for 1991-1992.

Sheridan County has one county hospital with 88 beds. The Veteran's Administration Hospital has 339 beds. There are eight nursing/rest homes with 405 beds. Thirty-three doctors and 16 dentists practice in Sheridan County. There is emergency medical transportation available.

Sheridan County has a public school budget of \$31,426,140. There are 15 public elementary schools, three middle schools, two junior high schools, and four senior high schools in Sheridan County. In addition there are four parochial or private schools in the county. In 1991, enrollment in all the public schools in Sheridan County was 4,504 and operation and maintenance cost per student was \$4,660. Education in the city of Sheridan is financed partially by property taxes. In addition there is a 25 mill level district wide and 6 mill levy county wide. The state equalization program provides funds and a portion of motor vehicle tax goes to education.

The Sheridan area offers a wide range of recreational activities. Outdoor activities include fishing, snowmobiling, skiing, hiking, camping, boating and hunting. Nearby lakes include DeSmet, Tongue River Reservoir, Park Reservoir, Twin Lakes and Sibley Lake.

The Big Horn Ski Area is nearby. Sheridan County has 11 ball fields, 5 soccer fields, 2 ice skating rinks, 4 swimming pools, 13 tennis courts and 2 golf courses. There is 1 bowling alley, 2 indoor movie houses, 1 outdoor movie theater, 1 YMCA facility and an amateur theater.

2.2.8 Transportation

The major transportation system serving the project area is Federal Aid Secondary (FAS) 566, a gravel or scoria surfaced road from which several roads diverge, travelling up various tributaries of the Tongue River. Among these are roads that provide access to the Custer National Forest by way of O'Dell Creek and Hanging Woman Creek.

FAS 566 extends south from Ashland east of the Tongue River to a point about 8 miles south of Birney, where it crosses to the westside of the Tongue River. It continues to parallel the river until it reaches Four Mile Creek, at which point it bifurcates into two segments. One segment continues to parallel the Tongue River and the Tongue River Reservoir on the westside until its junction with FAS 314. The other segment turns west and follows Four Mile Creek until it also joins with FAS 314.

Other significant roads that serve the project area include: 1) U.S. 212 Federal Aid Primary 37) connecting Lame Deer, Ashland and Broadus; 2) FAS 314, the paved road that connects Sheridan, Wyoming, and Decker, Montana, and extends north from Decker to a junction with U.S. 212 (Federal Aid Primary 37); 3) the paved road within the Northern Cheyenne Indian Reservation that parallels the westside of the Tongue River and connects Ashland and Birney Village; and 4) the paved road within the Northern Cheyenne Indian Reservation that connects Lame Deer and Birney Village (Figure 2-2).

The Northern Cheyenne Indian Reservation road connecting Ashland and Birney Village has experienced traffic levels of about 200 vehicles a day; the Northern Cheyenne Indian Reservation road connecting Lame Deer and Birney Village has experienced traffic levels of 215 vehicles a day. Traffic levels and current accident statistics for other area roads are presented in Table 2-8.

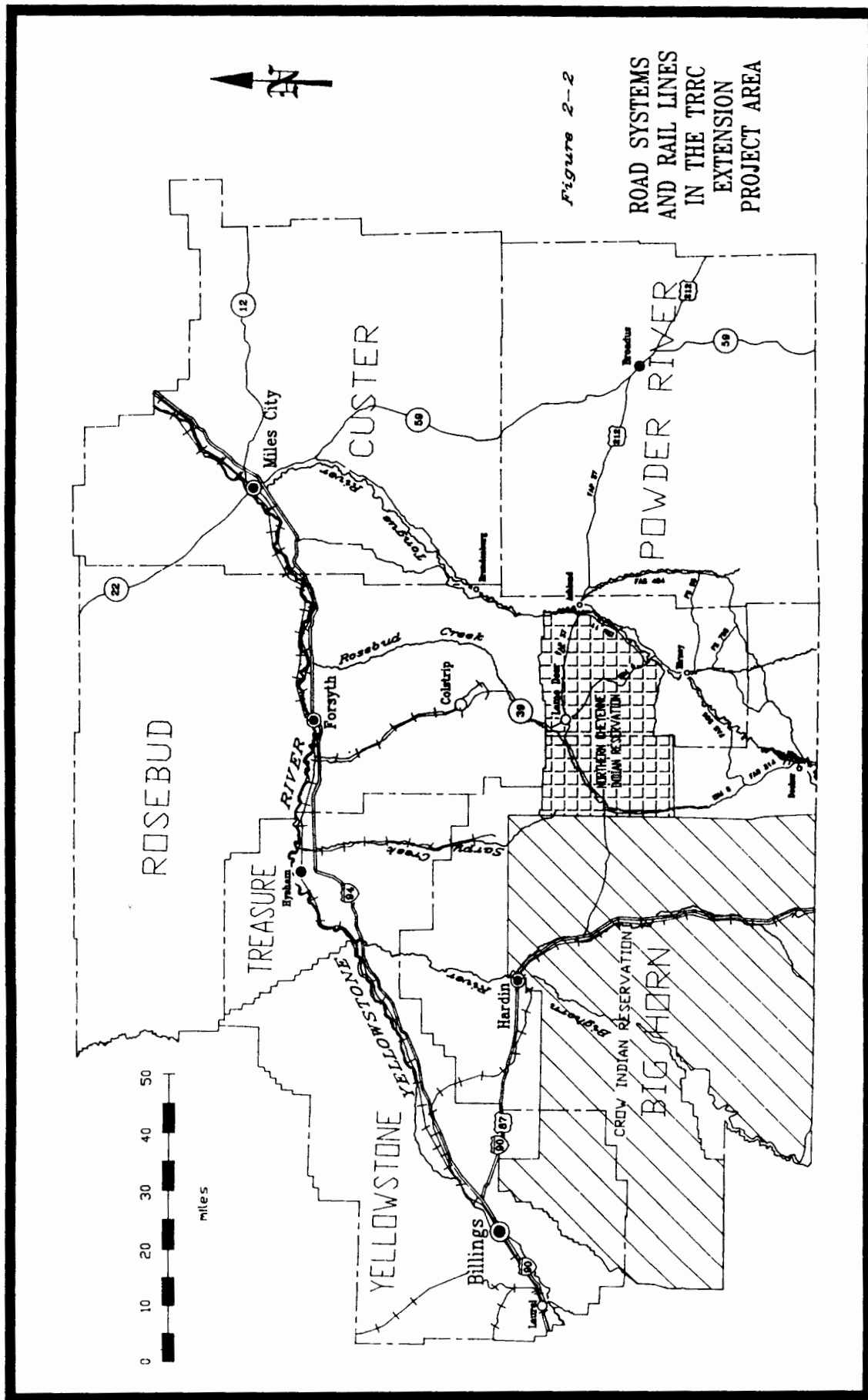


Figure 2-2

ROAD SYSTEMS
AND RAIL LINES
IN THE TRRC
EXTENSION
PROJECT AREA

Figure 2-2. Road systems and rail lines in the TRRC Extension project area.

Table 2-8. Traffic Statistics for Selected Segments of Area Roads.¹

ROAD SEGMENT	MEAN ADHT ² FOR 1987-1991	TOTAL ACCIDENTS	TOTAL INJURIES	TOTAL FATALITIES	ACCIDENT RATE
FAP 37					
Junction I-90 to Lame Deer	1,839	88	70	8	.83
Lame Deer to Ashland	1,146	50	48	6	1.16
Broadus to Ashland	747	46	31	0	0.82
FAP 39					
Forsyth (I-94) to Colstrip	1,386	38	25	2	0.62
Colstrip to Lame Deer	803	44	30	1	1.57
FAS 566					
Ashland to Birney	159	5	6	0	1.19
Birney to Four Mile Creek Junction	70	2	2	0	1.09
Four Mile Bifurcation to Junction with FAS 314	84	1	1	0	0.65
Tongue River Reservoir Bifurcation to Junction with FAS 314	NA	NA	NA	NA	NA
FAS 314					
Four Mile Bifurcation's Junction with FAS 314, to Decker	527	10	7	0	1.60
Decker to Montana-Wyoming Line	801	6	1	0	1.12
¹ Montana Department of Highways, Rural Planning Section, Annual Average Daily Traffic--Map Sheets; General Highway Maps--Custer County, Big Horn County, Powder River County, and Rosebud County; Highway Information System, unpublished printouts, June 14, 1990; February 12, 1992. ² ADHT = Average Daily Highway Traffic.					

A safety issue of particular concern regarding transportation pertains to the high fatality rate on roads on the Northern Cheyenne Indian Reservation in contrast to off-Reservation roads. During the period from 1979 and 1985, the fatality rate on U.S. Highway 212 between Busby and Lame Deer was 9.6 per 100 million miles, in comparison to a state average of 4.5 per 100 million miles. The remaining Northern Cheyenne Indian Reservation segments on the U.S. Highway 212--the Lame Deer to Ashland segment and the segment of the road from the western border to Busby--have a low sufficiency rating based on a combination of road condition, capacity, safety, and other rating characteristics.

The Reservation roads are served with emergency ambulance service from Lame Deer, where emergency medical attention is available to Native Americans and non-Native Americans. Emergency services, however, are limited in the immediate area of TRRC's preferred alignment and the Four Mile Creek Alternative. No medical facilities are

available in Birney, the one community located along the routes. Ambulance service for the Decker/Birney area is provided by Sheridan County ambulance service, operating from Sheridan, Wyoming.

Fire protection services also represents a problem for the residents in the immediate project area. The only local fire station is at Ashland. The Decker area of Big Horn County has a volunteer fire department, with at least one 1,000-gallon pump truck. There are no organized fire protection services in the Birney Community.

Medical facilities and fire protection in the general project area also are located in Colstrip, Forsyth and Miles City. The Lane Deer Clinic also provides urgent medical services to both Native Americans and non-Native Americans.

2.2.9 Air Quality

The temperature and precipitation trends of the Tongue River Basin are typical of a semi-arid climate. The region is characterized by cool/moist springs, warm/dry summers, and cold/moist winters. Winters are influenced by high pressure, arctic cold air masses from Canada, and by moist air masses from the northern Pacific region. Spring and summer precipitation usually is the result of moist air from the Gulf of Mexico flowing northward and being cooled as it rises across the High Plains.

Precipitation in the region varies considerably from month to month. Mean annual precipitation levels range from approximately 12 inches at the lower elevations to 15-16 inches at the higher elevations. Approximately one-half of the annual precipitation occurs during the period from April to June. A large portion of this precipitation occurs as thunderstorms. The highest twenty-four hour precipitation amount at Miles City was 3.74 inches in May, 1908. Precipitation data collected from August, 1979, to July, 1980, at the proposed Montco Mine, showed the wettest months to be May and June and the driest month to be August. The total rainfall during the one-year of measurements was 8.01 inches.

Large annual temperature variations are experienced in the region. The mean annual temperature in the region is about 45 degrees Fahrenheit (F). Temperatures at Miles City have ranged from a low of -49 degrees F in February to a high of 111 degrees F in July. Mean monthly temperatures at Colstrip reach their lowest in January, about 8 degrees F, and their highest in July, about 90 degrees F. The minimum and maximum temperatures recorded at the Montco meteorological station were -22 degrees F (December 16, 1980) and 102.2 degrees F (July 23, 1980).

Winds in the project area tend to blow from the northwest in fall and winter, from the west in spring, and from the southwest in summer, although nearer the Tongue River,

winds are influenced by the orientation of the Tongue River valley. There are large diurnal and seasonal changes in mixing heights in the Tongue River region. The mixing heights generally are lower in the mornings and much higher in the afternoons. The morning mixing heights increase slightly in the spring, whereas the afternoon mixing heights are lowest in winter and considerably higher in spring and summer. This is an important factor in determining pollutant dispersion rates.

Air quality conditions in the Tongue River area are generally considered good. Higher than normal air pollutant concentrations have occurred around existing coal mines (Colstrip) and populated areas (Ashland). With the exception of Colstrip and Ashland, air pollutant levels are well within the Montana and Federal ambient air quality standards. In the Colstrip and Ashland areas, total suspended particulate concentrations were measured in excess of the Montana and federal standards. The Colstrip area has been designated as a non-attainment area for TSP. The TSP standards were replaced in 1987 by a standard measuring the 10 micron or smaller suspended particulates (PM-10). Since the adoption of the PM-10 standards, the Ashland and Colstrip areas have been designated as Group 1 areas, areas having the potential to exceed the PM-10 standards. The remainder of the Tongue River area has been designated either as attaining the ambient standards or as non-classified. PM-10 measurements have been made only recently in the Colstrip and Ashland areas. Background areas of the Tongue River area have not been monitored for PM-10 particulate concentrations.

The majority of the Tongue River area is classified as Class II under the Clean Air Act of 1977. The only exception to the Class II designation is the Northern Cheyenne Indian Reservation which has been redesignated a Class I. The Class I restricts the increase in air pollutant levels above that already experienced to a much smaller increment than the Class II designation. The Northern Cheyenne Indian Reservation Class I area is across the Tongue River, west of the proposed Extension.

Existing sources for air pollutants in the Tongue River area include the Colstrip Units I-IV coal-fired power plants, the Peabody Coal Company and Western Energy Company coal strip mines, (approximately 40 miles from the proposed Extension) agricultural operations, and wind erosion from exposed areas. Colstrip Units I - IV plants and the two existing surface mines are the principal sources for gaseous air pollutants. All the above named sources emit TSP and PM-10 particulates.

Table 2-9 lists the Montana and Federal ambient air quality standards. Table 2-10 lists the Class I and Class II increments for sulfur dioxide, TSP, and nitrogen dioxide.

Table 2-9. Ambient Air Quality Standards.

POLLUTANT	AVERAGING TIME	MONTANA	FEDERAL PRIMARY	FEDERAL SECONDARY
PM-10 Suspended Particulates	Annual 24 hour	50.0 ug/m ³ * 150.0 ug/m ³ **	50.0 ug/m ³ 150.0 ug/m ³ **	0.0 0.0
Sulfur Dioxide	Annual 24 hour 1 hour 3 hour	0.02 ppm * 0.10 ppm ** 0.50 ppm ** 0.00	0.03 ppm 0.14 ppm ** 0.00 0.00	0.0 0.0 0.0 0.5 ppm **
Carbon Monoxide	8 hour 1 hour	9.0 ppm ** 23.0 ppm **	9.0 ppm ** 35.0 ppm **	9.0 ppm ** 0.0
Nitrogen Dioxide	Annual 1 hour	0.05 ppm 0.30 ppm **	0.05 ppm 0.0	0.05 ppm 0.0
Photochemical Oxidants (ozone)	1 hour	0.10 ppm **	0.12 ppm **	0.12 ppm **
Lead	90 day Quarter	1.5 ug/m ³ 0.0	0.0 1.5 ug/m ³	0.0 0.0
Hydrogen Sulfide	1 hour	0.05 ppm **	0.0	0.0
Settled Particulate (Dustfall)	30 day	10.0 gm/m ²	0.0	0.0
Visibility	Annual	3x10 ⁻⁵ per meter part. scattering@	0.0	0.0
* ug/m ³ = micrograms pollutant per cubic meter of sampled air. ppm = parts pollutant per million parts of sampled air. ** Not to be exceeded more than once per year. ** Not to be exceeded more than 18 times per year. @ Applies to PSD mandatory Class I area.				

Table 2-10. Federal Prevention of Significant Deterioration Allowable Increments.

	Micrograms Per Cubic Meter			
	I	II	III	Not to exceed
Particulates				
Annual Geo. Mean	5	19	37	75
Maximum 24-hour	10	37	75	150
Sulfur Dioxide				
Annual Arith. Mean	2	20	40	80
Maximum 24-hour	5	91	182	365
Maximum 3-hour	25	512	700	1300
Nitrogen Dioxide				
Annual Arith. Mean	2.5	25	50	94

2.2.10 Noise

The immediate area of TRARC's preferred alignment and the Four Mile Creek Alternative is predominantly rural and agricultural. Noise levels are a function of wind, fauna, agricultural equipment, and road traffic. Without road traffic and operating farm machinery, rural ambient noise levels range from 20 to 40 dBA.

2.2.11 Cultural Resources

Part of the ICC's environmental review is to comply with Section 106 of the National Historic Preservation Act. Section 106 requires that prior to issuing any permit or license the Federal agency must evaluate the effects of the proposed project on any district, site, building, structure or object that is listed in or found eligible for listing in the National Register of Historic Places. To fulfill this requirement, the ICC relies on the rules promulgated by the Advisory Council on Historic Preservation implementing Section 106. Under these rules the Federal agency is required to: (1) make a reasonable and good faith effort to identify historic properties which may be affected by the undertaking and to gather sufficient information to evaluate the eligibility of these properties for inclusion in the National Register of Historic Places; (2) assess whether the proposed action will have an effect on the properties identified, and if so, whether the effect will be adverse; and (3) if there will be an adverse effect, seek ways to avoid or reduce the effect.

Additionally, the American Indian Religious Freedom Act (AIRFA) requires Federal agencies to assess the impact of proposed projects on the right of Native Americans to exercise their traditional religions, including their access to sacred sites and to use and possession of sacred objects. Under AIRFA, Federal agencies are required to consider the policies embodied in that statute and seek to avoid unnecessary interference with Native American religious beliefs and practices. The Federal AIRFA policy operates in addition to policies and procedures designed to evaluate historic Native American traditional sites pursuant to the National Historic Preservation Act.

Recently the National Park Service of the Department of Interior, the agency responsible for administering the National Register of Historic Places, issued a bulletin entitled "Guidelines for Evaluating and Documenting Traditional Cultural Properties [Bulletin 38]." Because traditional cultural resources are often hard to recognize and are therefore in danger of being overlooked by archeological, historical or architectural surveys, Bulletin 38 is designed to aid in determining whether properties thought or alleged to have traditional cultural significance are eligible for inclusion in the National Register of Historic Places.

Bulletin 38 is also responsive to AIRFA by assisting Federal agencies in protecting the religious freedoms of Native Americans. Thus, in describing the environmental and cultural setting, particularly of Native Americans, it is important to identify not only spiritual resources such as grave sites and religiously significant landforms, but also traditional cultural properties which are significant to Northern Cheyenne history but whose significance is not derived from spiritual attributes.

The ICC is negotiating a Programmatic Agreement between all interested parties who are concerned with the identification, preservation and protection of historical, cultural, and spiritual resources which may be affected by the construction and operation of the proposed Extension. The contents of the Programmatic Agreement are discussed in Chapters 4 and 6.

2.2.11.1 General Overview

TRRC's preferred alignment and the Four Mile Creek Alternative are located in the Northwestern Plains subarea of the Great Plains Culture area. The seven successive phases of possible human inhabitation identified in the project area are: the Paleo-Indian phase (9500-5500 BC); the Early Plains Archaic phase (6000-3000 BC); the Middle Plains Archaic phase (3000-500 BC); the Late Plains Archaic phase (1000 BC - AD 500); the Late Pre-historic phase (AD 500-1700); the Protohistoric phase (AD 1700-1800); and the Historic phase (AD 1800 - AD 1930). The 1985 TRRC EIS describes the artifacts and subsistence patterns associated with these phases.

Prehistoric inhabitation of the region is best represented by the Late Plains Archaic phase. Sites indicative of this period include lithic procurement areas, porcellanite workshops, lithic workshops, and campsites. Bison kill sites, rock art sites, and eagle-catching pits also may be represented (Figure 2-3).

The historic phase is typified by the change from Native American dominance to the development of the open range livestock industry. The U.S. Army played an integral role during the period. Railroad development and homesteading encouraged the establishment of private land holdings in the regions. The creation of the Crow and Northern Cheyenne Indian Reservations in 1868 and 1884, respectively, established permanent cultural enclaves

within the project area. Evidence of this period include homestead structures, battle sites, campsites, transportation corridors and mining developments (see Figure 2-3).

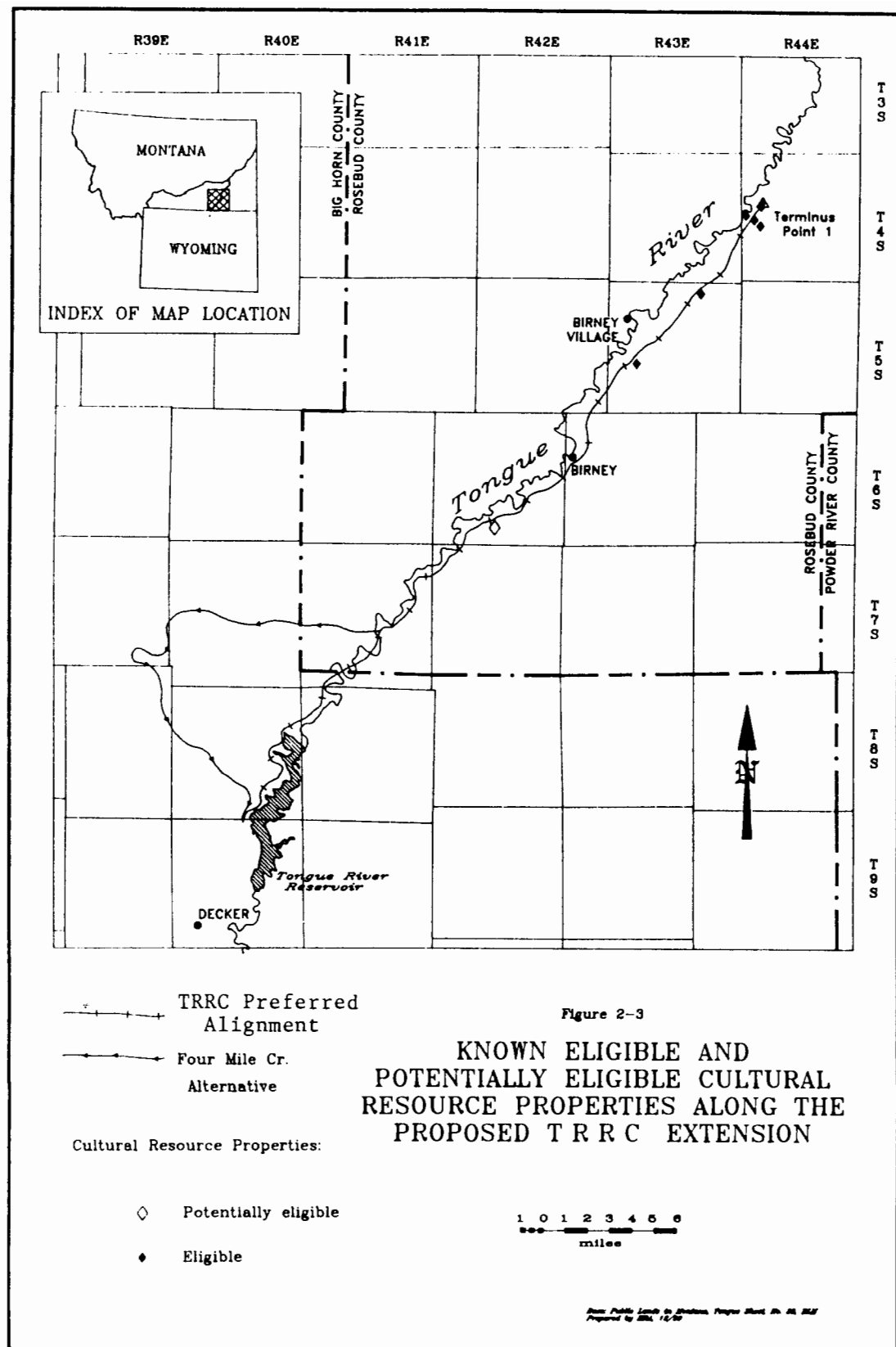


Figure 2-3. Known eligible and potentially eligible cultural resource properties along the proposed T R R C Extension.

2.2.11.2 Property Types and Qualities of Significance: Prehistory

The most common property types likely to be found in the project area include: (1) lithic procurement sites; (2) lithic workshops; and (3) campsites. A lithic procurement site refers to a location at which raw stone to be used in making tools was obtained. Lithic workshops represent areas where stone tool manufacture took place. Lithic workshops may be located at the raw material source (lithic procurement area), but often they are situated at a location more attractive for short term camping or game observation. The category of campsites includes open camps, tipi ring camps, and rock shelter habitations. At all such locations, artifacts are present which indicate a variety of maintenance activities--those geared toward fulfillment of nutritional and technological requirements.

In addition to these three main categories of prehistoric properties, a variety of properties representing specific extractive (subsistence) or ritual activities are found in the area. For example, bison kill sites, where large numbers of bison were stampeded into natural or contrived traps, occur in the area. Rock art (pictograph or petroglyph) sites are also evident. Burials, wooden habitations or fortifications, medicine wheels, and stone structures of various kinds including cairns, fortifications, eagle-catching pits, and vision quest structures are more limited in occurrence but may be present in the project area.

2.2.11.3 Property Types and Qualities of Significance: History

Historic property types which may occur in the study area include: (1) battle and military sites dating to the 1860s and 1870s; (2) historic agricultural settlements; (3) transportation facilities and structures; (4) historic coal mines; and (5) community buildings. Battle and military sites are simple sites that may include breastworks (low mounds of dirt), rifle pits or other excavations in the ground surface. When there are no physical remains, the entity that becomes the historical site is the landscape itself.

Historic agricultural settlements will be represented by complexes that vary in size. This property type may not only include a small homestead with a house and one or two outbuildings, it may also include an extensive ranching complex with buildings specific to animal husbandry operations (lambling sheds, horse barns) and with outlying line camps.

The property types pertaining to transportation may be comprised of old roadways, bridges and trails. Abandoned railroad grades also may belong in this category.

Historic coal mines in the study area likely will be limited to small mines operated for domestic consumption only. Evidence of underground mines may include areas of subsidence, while evidence for surface mines may include stripped areas. Equipment may be present at a mine site, along with a tippie and remains of old rails.

Individual buildings in rural communities considered as historic property types may include residences associated with individuals or events of local or state significance. Community buildings such as schools, churches, and stores also may be included.

Project area resources that can be evaluated within the context of the National Historic Preservation Act may be defined as traditional cultural properties of significance to Native Americans, particularly to the Northern Cheyenne. These resources may be prehistoric or historic and may or may not be eligible for inclusion in the National Register of Historic Places. These resources may or may not have spiritual qualities and may also fall within the purview of AIRFA. The important point about them is that they have significance from a traditional point of view.

2.3 DESCRIPTION OF THE NORTHERN CHEYENNE AND CROW INDIAN RESERVATIONS

As stated in Chapter 1, with regard to the concerns of Native Americans who will be affected in the project area, this draft EIS is tiered to the BLM Supplemental Draft EIS entitled Draft Economic, Social and Cultural Supplement, Powder River I Regional EIS which was prepared in 1989. The Council on Environment Quality's regulations (40 CFR 1502.20) set forth specific requirements for tiering to another agency's documents. In accordance with those requirements, we have summarized relevant information regarding the Northern Cheyenne and Crow Indian Reservation from the BLM report, concentrating on those issues of most concern.

The ICC retained the consultant services of Ethnoscience (ethnography specialists) to assist the Commission in complying with its responsibilities under the American Indian Religious Freedom Act (AIRFA). Essentially, AIRFA requires Federal agencies to assess the impacts of proposed projects on Native Americans and to seek ways to avoid unnecessary interference with tribal cultural values and religious practices. We have included in this draft EIS applicable information from Ethnoscience's report entitled: "Potential Cultural Effects on the Northern Cheyenne From the Proposed Tongue River Railroad Extension" which was submitted to the ICC in June 1991.

The draft EIS also relies on information obtained through consultation with affected Native Americans, specifically the Northern Cheyenne. In addition, the draft EIS relies on material contained in the Environmental Report prepared by the Tongue River Railroad Company, the Final EIS on the Montco Mine prepared by the Montana Department of

State Lands in 1984¹⁰, and comments from numerous Federal, state and local government agencies, interested groups and organizations and individuals.

2.3.1 The Northern Cheyenne Indian Reservation

The Northern Cheyenne Indian Reservation is located in Rosebud and Big Horn Counties and the Tongue River forms the eastern boundary of the Reservation. It is approximately 677 square miles in size and currently population is approximately 4,144 individuals. Although several Native American peoples consider the project area as traditional land, because of the proximity of the Northern Cheyenne Reservation to the project area, we have considered the impacts from the construction and operation of the proposed Extension on the Northern Cheyenne in greater detail because the proposed projects will cause some social, economic and cultural impacts to the Reservation.

There are currently five communities on the Northern Cheyenne Indian Reservation: Ashland Village, Birney Village, Busby, Lame Deer, and Muddy. Of these communities, Lame Deer is the largest with approximately 2,000 people in the town and surrounding district. Lame Deer is the site of the Tribal government office, the Indian Health Service Clinic, the Bureau of Indian Affairs Northern Cheyenne Agency, Dull Knife Memorial Community College, and most other Reservation services. Busby, with a population of 569 in the town and surrounding district is the site of the BIA-operated elementary and high school. Retail businesses on the Reservation are limited to the towns of Lame Deer and Busby.

In addition there are two cluster or village areas located just west of the Tongue River. (Non-Indian counterparts, though smaller populations, are located just off the Reservation on the east side of the Tongue River.) On-Reservation Ashland has a town and district population of 400. On-Reservation Birney, with a population of 166 in the village and surrounding district, is the most isolated community and the most traditionally-oriented community on the Reservation. There are also rural population areas located along major creeks; the most densely populated is the Muddy Creek area with a population of 200. It is generally acknowledged that each of these five population districts has developed a distinctive character that distinguishes it from the others.

Employment on the Northern Cheyenne Reservation has fluctuated widely with unemployment exceeding 50 percent in 1986 and increasing recently to about 70 percent. The major employers on the Reservation are the tribal government and the school system. Other employment categories include cattle production, lumber production, and mining.

¹⁰ Montco proposes to operate this mine which is located six miles south of Ashland, MT. This mine would be served by TRRC as part of its already permitted rail line from Miles City to Ashland.

Population too fluctuates, characterized by an increase due to the return-migration of Northern Cheyenne seeking employment during the development of the Colstrip mines and power generation facilities during the 1970s and early 1980s and a high birth rate. With the completion of Colstrip Units 3 and 4 in the mid-1980s, the Reservation began experiencing a net outmigration of population. However, the high birth rate continues because the median age on the reservation is 19.1, indicating that a larger proportion of the Reservation population is in its prime child-bearing years.

Household income is, for the most part, spent off-Reservation which inhibits the growth of business activity on the Reservation. Traditionally, a significant segment of the reservation economy has involved the barter of goods and services.

Tribal revenues as a whole derive from the development of resources on the Reservation and the Tribe's primary sources of federal funding include the Bureau of Indian Affairs, the U.S. Department of Housing and Urban Development (HUD) and the Indian Health Service.

The Tribal Council, as the primary governing body of the Reservation government, decides by majority vote on issues affecting the Tribe. In the last 15 years the Northern Cheyenne Tribe has increased its awareness, technical knowledge, experience, and sophistication in dealing with off-Reservation development.

Generally, there are severe housing shortages on the Reservation because funding for new housing construction, almost totally funded by HUD, has not kept pace with demand.

Although a number of non-fee public or low-fee private elementary and high schools, both on and off the Reservation, are available to Northern Cheyenne children, some major concerns have been raised regarding education of Reservation students. These include the future of a Reservation-managed high school, high dropout rate of high school students, long commutes over poor roads, and a concern about a lack of involvement with and understanding of Northern Cheyenne culture and language by the off-Reservation public schools attended by many Northern Cheyenne students. Additional concern has been expressed about the deterioration of Reservation schools as students transfer to off-Reservation schools, since Reservation schools are largely reliant on student enrollment-based funding.

Social researchers consistently report that Northern Cheyenne Tribal members have a strong sense of Tribal identity. However, social diversity and complexity has continued to increase, largely as a result of increased interactions with members of other cultures both on and off the Reservation, as well as exposure to new values and lifestyles through television and movies. Because of the increasing heterogeneity in the Northern Cheyenne community, there are numerous distinct subgroups within the Reservation population. Sub-

groupings that are most often identified include full-bloods versus the mixed-bloods, the employed versus the unemployed; and the traditionalists versus the progressives.

Regional coal development has accelerated social diversification among the Northern Cheyenne, mainly by providing avenues for more contact between Tribal members and non-Native Americans. Coal-related employment has benefitted some individual Northern Cheyenne very much but has not benefitted the majority of Tribal members. This, combined with other social changes that have taken place, such as the growth of single family households and some deterioration in the practice of extended family economic cooperation, has resulted in the perception that Tribal resources in general, and the benefits of coal development in particular, are not equally accessible to all Tribal members. The adverse effects of coal development, however, such as increased traffic, increased presence of non-Native American transients on the Reservation and non-Native American inhabitants off the Reservation, increased demand for Tribal facilities and services due to in-migration, and increased pressure on traditional cultural values, are seen as burdens borne by all Northern Cheyenne.

Indicators of social well-being reveal a number of complex issues. Alcoholism, drug addiction, violent crime and lack of adequate housing continue to be serious problems. At the same time, revival and preservation of sacred and traditional ceremonies has become increasingly important, with an emphasis on adapting traditional cultural knowledge to present times. Still, there is a widespread feeling that the Tribe as a whole is not faring well and that the struggle to maintain traditional cultural ways and adapt them to contemporary needs creates continuing stress and disillusionment. The traditional values that many Northern Cheyenne still uphold, and feel are most in conflict with non-Indian values, include a deep respect or reverence for the land, a strong emphasis on kinship bonds, and an emphasis on group welfare.

Traditional Cultural Perspective

Many Native Americans, including a number of Northern Cheyenne, hold traditional views about the environment. From the traditional Northern Cheyenne perspective, the existing environment has spiritual as well as physical qualities. The Crow, Arapaho, Oglalas and Miniconjou, who also have historic ties to the area, share this most basic definition of the world. The universe is defined as animate, a living system, that contains both material and nonmaterial (spiritual) parts. The components of the system cannot be separated. Changes to material parts of the system cause changes to spiritual parts. The reverse is also true.

In January 1877, a group of Northern Cheyenne, led by Two Moons, and Oglalas, led by Crazy Horse, fought a detachment of the Fifth Infantry, commanded by Colonel Nelson A. Miles, a few miles south of the intersection of Hanging Woman Creek and the east bank of the Tongue River. This battle (Battle of Tongue River/Battle of Wolf Mountain) is associated with the landform labeled on current topographic quadrangles of the area as

Battle Butte. A single cairn marks the location where Big Crow, the only Cheyenne killed in the battle, fell. The proposed Extension route is immediately adjacent to this battle site where reportedly both a Northern Cheyenne and U.S. Infantryman died. The defeat of the Indians at Battle Butte led to the eventual surrender of the Northern Cheyenne leader Two Moons to Colonel Miles at Fort Keogh, Montana, the present day site of Miles City.

In the 1880s the Northern Cheyenne were widely scattered; some were living in Oklahoma with the Southern Cheyenne, some in Wyoming with the Arapahos, and still others were in South Dakota with the Oglala and Miniconjou. Two Moon's people and Little Wolf's band were at Fort Keogh, and White Bull's people lived in the Tongue River area. In the early 1880s Colonel Miles asked an ex-soldier, George Yoakam, to help some of the Northern Cheyenne settle on land under the Indian Homestead Act of 1875.

By 1882, the Cheyenne were moving away from Fort Keogh to homestead along the Tongue and Powder Rivers and Rosebud Creek. By the 1890s, 45 Northern Cheyenne families (approximately 130 people) had established homes on the east side of the Tongue River where they lived in traditional lodges, hunted and planted gardens along the river. According to Indian Agent J.C. Clifford, the Northern Cheyenne living on the east bank of the river regularly moved to the west bank for about six weeks during the spring to avoid high water.

Some Northern Cheyenne who lived east of the Tongue River during this period are important historical personages, both from the perspective of Cheyenne history and U.S. military history of the region. Medicine Top was the son of the Medicine Lodge/Sun Dance Priest Box Elder, a veteran of the Battle of the Little Big Horn and participant in the *Maussaum* Ceremony of 1911. White Bull, who was a famous Northern Cheyenne Medicine Man, Medicine Lodge/Sun Dance Priest, and Chief, was also the first enlisted Indian scout at Fort Keogh. White Hawk, another of the east bank settlers, was fired as Captain of Police in 1891 by Indian Agent John Tully for refusing to force runaway Northern Cheyenne children back to school. Apparently, after being fired, White Hawk became a religious leader working against Porcupine, a major figure in the development of the Ghost Dance religion, a significant event in Northern Plains history in general and in U.S. Military-Plains Indian relationships in particular.

Historically, the Tongue River Valley has been the locale of important ceremonial events, such as Ghost Dance-related fasts and sweats held to mark the end of the annual winter ceremonies, both of which took place east of the Tongue River. Locales of ceremonies have spirits which remain in place and must be treated with respect. (Some Northern Cheyenne believe that the localities immediately east of Ashland and Birney Villages appear to be particularly sensitive in this respect.)

In 1884, President Chester A. Arthur created the Tongue River Indian Reservation by Executive Order. However, the final boundaries, those currently in use, were not estab-

lished until 1900. The significance of the Tongue River Reservation as a sanctuary and homeland for the Northern Cheyenne cannot be overstated. During the late 1800s, the Northern Cheyenne came very close to extinction. The Tongue River area was their last refuge and is recognized as the place where they were able to survive and come together as a people. The Reservation is viewed as a last sanctuary where the Northern Cheyenne can retain their unique cultural identity. Consequently, protecting the traditional environment of the Reservation is viewed not only as a spiritual responsibility but also as being necessary to ensure the survival of the Northern Cheyenne as a people.

Since the valley of the Tongue River has been home to the Northern Cheyenne for more than 100 years, the people have developed a relationship to the river and the valley in terms of everyday activities, as well as in a spiritual capacity. According to Cheyenne beliefs, rivers have spiritual qualities that become associated with the people who live around them. Offerings of cloth and tobacco are made to the Tongue River. The people of Birney Village, one of the most traditional settlements on the reservation, emphasize their close relationship with the Tongue River. They pray to the *East/Esseneta'he* and fast in the hills overlooking the Tongue River. Consequently, they fear coal-related pollution of the water and changes which will inhibit the ability to continue traditional religious activities, and they are fearful of the proposed rail development which will facilitate coal development in the area. Birney Village residents also use the river for watering horses, watering gardens and washing hides. Basic wild food plants are dependent on this water source. Medicinal plants are collected along the banks of the river. From the Northern Cheyenne perspective, coal pollution of the waters will destroy the spiritual tie between the people and the spirit of the river. They believe that there is no mitigation possible for the loss of this spiritual tie.

In addition to the spirit of the river itself, the valley is home to eagles, birds whose spiritual aspects act as go-between or mediators between the people of the valley and the sacred forces of the Blue-Sky space. The sacred forces of the Blue-Sky space are different forms of the *Maheo*, the epitome of energy/spirituality in Cheyenne cosmology. The Tongue River Valley is home to *zeevasoheva* (men and mammals). The predators and game found in the valley are regarded as relatives by traditional Northern Cheyenne. Both game and predators retain ceremonial functions in Northern Cheyenne culture, e.g., Sun Dance pipes are made from the lower leg bone of antelope. The plants of the Tongue River Valley are also regarded as relatives by traditional Northern Cheyenne. Traditionalists talk to plants, give them gifts, and miss them when they haven't seen them for awhile. Chief plants are sought out as a source of medicine. There are many plants in current use for ceremonial purposes by the Northern Cheyenne, and some of these, such as cattails, red willow, and cottonwood, all used on the south side of the Sun Dance, are found in the Tongue River Valley. Big Medicine, an important medicinal root, *Lomatium* sp., is regularly collected along the east side of the river, as well as along Poker Jim Creek and near the Tongue River Dam. A more complete list of plant species used by the Northern Cheyenne is found in Table 2-11. To continue to show respect to these plant

relatives, the Northern Cheyenne believe there is a need to protect those things the plants need to live: fresh air and water.

Table 2-11. Plant Species of Southeastern Montana Used by the Northern Cheyenne Tribe.

Common Name	Scientific Name	Brief Description of Use
box elder	<i>Acer negundo</i>	making sacred utensils
western yarrow	<i>Achillea millefolium</i>	medicine; religious ceremonies
red baneberry	<i>Actaea rubra</i>	medicine; religious ceremonies
green ash	<i>Fraxinus pennsylvannica</i>	construction; handiwork
red-osier dogwood	<i>Cornus stolonifera</i>	smoking; arrows
pineapple weed	<i>Matricaria matricarioides</i>	perfume
eastern lomatium	<i>Lomatium orientale</i>	medicine
rush skeletonweed	<i>Lygodesmia juncea</i>	medicine; tea
sweetgrass	<i>Hierochloa odorata</i>	insense; religious ceremonies
curlycup gumweed	<i>Grindelia squarrosa</i>	medicine
American licorice	<i>Glycyrrhiza lepidota</i>	medicine; chew
Rocky Mountain juniper	<i>Juniperus scopulorum</i>	medicine; bows; ceremonies
purple coneflower	<i>Echinacea pallida</i>	medicine
plains pricklypear	<i>Opuntia polyacantha</i>	food
kinnikinnick	<i>Arctostaphylos uva-ursi</i>	medicine; religious ceremonies
chokecherry	<i>Prunus virginiana</i>	medicine; food
cudweed sagewort	<i>Artemisia ludoviciana</i>	medicine; ceremonies; incense
ponderosa pine	<i>Pinus ponderosa</i>	gum; handiwork
rose	<i>Rosa</i> spp.	medicine; tea
field mint	<i>Mentha arvensis</i>	tea; perfume; aphrodisiac
yampa	<i>Perideridia gairdneri</i>	food
showy milkweed	<i>Asclepias speciosa</i>	medicine; gum; food
willow	<i>Salix</i> spp.	medicine; religious ceremonies
eastern cottonwood	<i>Populus deltoides</i>	construction; animal food; paint; religious ceremonies
horsemint	<i>Monarda fistulosa</i>	horse perfume
Source: Final Environmental Impact Statement, Montco Mine, Rosebud County, Montana, Montana Department of State Lands, July 1984, Table II-10, p. II-22.		

The valley of the Tongue River contains springs which have associated spirits and must be treated with respect. The hills surrounding the Tongue River contain the spirits of animals and Northern Cheyenne waiting for *Maheo's* permission to be reborn and/or continue their journey to the Earth Surface Dome. Traditionalist Northern Cheyenne have

an ongoing relationship with the Tongue River Valley, which makes them responsible for preventing damage to the valley. This is part of their role as caretakers of their environment, and it is their responsibility to future generations of Northern Cheyenne who are currently on their journey to join those now living. In addition, it is their responsibility to prevent damage to their plant and animal relatives.

Because the proposed Extension of the Tongue River Railroad is part of a larger, previously permitted rail system beginning at Miles City and connecting with and terminating at the proposed Extension south of Ashland, the general cultural effects noted in connection with the proposed Extension, such as impacts to the spirits who live in springs, will be the same on both segments of the line. The development of the Tongue River railroad is tied to the potential expansion of coal mining in southeastern Montana and northeastern Wyoming. The expansion of coal mining adjacent to the Northern Cheyenne Reservation is viewed by many traditional Northern Cheyenne as being a direct and eminent threat to their ability to maintain their spiritual ties to their homeland and to preserve their ethnic identity.

2.3.2 The Crow Indian Reservation

The Crow Indian Reservation is located in Big Horn and Yellowstone Counties, Montana. It is approximately 2,429 square miles in size with a current populations of approximately 6,313 individuals. However, because the Crow Reservation is further removed from the proposed Extension construction and operation, the level of impacts on the Reservation are expected to be less significant. Nevertheless, the lands of the project area were part of the traditional hunting regions of the Crow Tribe and remain important in Crow history.

Conditions on the Crow Reservation, in general, approximate those on the Northern Cheyenne Reservation, though the Crow Reservation is much larger and closer to larger communities such as Hardin and Billings, Montana and Sheridan, Wyoming, with resulting greater pressures and impacts from non-Native influences.

Revenues on the Crow Reservation come from grazing and agricultural leases, coal mining on the Reservation, and federal government funds for specific programs such as housing and general assistance.

The Crow Tribe benefits from coal mining on mines immediately north of the Reservation. Consequently, attitudes to area coal development may differ in some respect from attitudes held by the Northern Cheyenne. Attitudes expressed by Crow Reservation residents about increased regional coal development involved concern that off-Reservation coal would compete with on-Reservation coal and reduce the market value of the former. Concern is also expressed regarding the future distribution of federal monies for Reserva-

tion services to cover expected increased needs as a result of off-Reservation coal development, and concern about increased pressures from an influx of non-Native Americans and resulting impacts to the traditional way of life.

Other major concerns cited by Crow Reservation residents involve unemployment and poverty, alcohol and drug abuse, lack of economic development and housing shortages. Also frequently discussed is concern about the loss of traditional values and the inability to practice traditional culture and religion. In general, like the Northern Cheyenne, many Crow Reservation members are increasingly distressed by a sense of tribal disintegration.

Crow religious values and cultural identity are inseparable. Traditional religious practitioners consider all things to have a spiritual aspect or *baxpe*. The universe, which is made up of two clans, was charged with *baxpe* by the Creator. The Earth clan consists of the Mother earth, rocks, trees, plants, and flowers-all of which are essential to Crow religious practices. The sun, moon, stars, thunder, land and water animals, whirlwinds, spirits of the dead, and the Little People are referred to as Father, and make up the Without Fires clan.

Humans act as conduits and receivers for the spiritual forces of the universe and are responsible for protecting the environment. Crow religion is practiced on an individual level, such as through the vision quest and medicine bundle practices, rather than through collective practice. In addition to *baxpe*, the traditional Crow believe in the power of the Little People, the Sun Dance, and the Tobacco Society. All things containing *baxpe*, including burials, must be treated with respect. The traditional Crow contact spiritual forces through fasting or, occasionally, when under emotional stress. Following successful contact with a spirit helper, the items identified by the helper are collected and placed in a bundle.

The land on and near the Crow Reservation is considered by the Crow to be a sanctuary from the non-Indian world. Here the traditional way of life can be maintained and the traditional language spoken. For the traditional Crow, the land, as the integral aspect of the Earth clan, must be treated respectfully. Some traditional Crow believe that major land disturbing activities, such as mining, should not be conducted. Others accept such disturbances, but believe that disturbed land should ultimately be restored and enhanced, not just restored to the pre-existing condition. Such enhancement would show respect to the Earth Mother and to the plants and animals who dwell upon her.

CHAPTER THREE

3.0 DESCRIPTION OF THE PROPOSED EXTENSION: TRRC'S PREFERRED ALIGNMENT AND THE FOUR MILE CREEK ALTERNATIVE

3.1 TRRC'S PREFERRED ALIGNMENT

3.1.1 Construction

As approved by the Commission in 1986, the Tongue River Railroad Company (TRRC) proposed to construct an 89-mile single-track rail line from Miles City to two terminal points--one in Rosebud County and one in Powder River County. Beginning at its connection with the Burlington Northern Railroad Company's (BN) mainline in Miles City, the rail line would bear south and parallel the Tongue River on the west side until a point about 10 miles north of Ashland, Montana (milepost 63.6), where it would cross the Tongue River and continue on the east side of the river, to Ashland. Near Ashland, at milepost 72.2, the railroad would split with one branch following Otter Creek 7.7 miles to Terminus Point 2 and the other branch following the Tongue River 8.9 miles to Terminus Point 1.

From Terminus Point 1, TRRC now proposes to construct and operate a 42-mile Extension which would follow the Tongue River, generally paralleling the eastern shore of the Tongue River until south of the Northern Cheyenne Indian Reservation, crossing the Tongue River several times and then passing to the west side of the Tongue River Reservoir (see Figure 1-1). The Extension would not cross any portion of the Northern Cheyenne Indian Reservation. That portion of the proposed Extension adjacent to the Reservation would follow the eastern shore of the Tongue River which itself forms the eastern boundary of the Reservation. The rail line would connect with the private rail line owned by the Spring Creek Coal Company (NERCO) and extend to connections with the East Decker and West Decker coal mines without interfering with the BN. The rail line would not connect with any BN rail line unless an arrangement can be negotiated regarding the BN track between East Decker and BN's end-of-track connection with Spring Creek.

Constructed according to current mainline standards, the proposed Extension would be comprised of 136-pound continuous-welded rail (CWR) on treated hardwood ties. The track would rest on 8 inches of ballast and 12 inches of sub-ballast. Ranging from a minimum of 75 feet to a maximum of 300 feet, the right-of-way (ROW) width would average 200 feet. Two passing sidings, each about 8,500 feet long, would be constructed for the Extension. Shorter sidings with a minimum length of 550 feet also would be constructed at each passing track location and at two additional locations along the main line.

The TRRC proposes to utilize a Track Warrant Control System for signals and communication. Communications under this system would be provided by the use of two-way radio equipment and by possibly leasing telephone lines from the U S West telephone system. High speed "state of the art" Number 20 spring or electric-powered switches at all passing sidings will be an integral part of the system, allowing for route diversion at speeds of 50 miles per hour.

The TRRC plans to construct new terminal facilities at Miles City. These facilities would consist of buildings for train and engine crews, dispatching, headquarters operation, limited servicing and maintenance, and maintenance-of-way activities. Three additional tracks, 7800 feet long, would be constructed to handle yard activities.

Prior to construction, a final engineering survey, including staking of the ROW, would be completed in conjunction with a geotechnical (soils) investigation. The design locations of the centerline, culverts, bridges, sidings, cattle guards, and road crossings would be finalized.

Construction is planned to be completed in three years for the entire alignment, including the permitted rail line from Miles City to Terminus Point 1 and the proposed Extension from Terminus Point 1 to Spring Creek. The rail line to Terminus Point 2 on Otter Creek would be completed at a later date. The construction season for each year would likely begin in April and end in October, depending on weather.

The construction work force would number 350 in the first year of construction and could number as high as 728 in the second year of construction. Forty (40) percent of the work force could be derived from local communities. The remainder would be non-local employees. Most non-local construction workers would live in the five construction centers to be located along the alignment: at Miles City, Cow Creek Area, Ashland, Birney, and Decker. Situated outside the ROW, the construction center locations would be dependent upon obtaining landowner permission.

The first requirement in constructing the rail line would be the purchase of the ROW. Once the ROW has been secured and fenced, work would begin with the clearing and grubbing of the construction corridor. When the clearing process has been completed, the installation of livestock passes, culverts, railroad bridges, and a tunnel would begin. Twenty-five (25) livestock passes are currently planned for the TRRC extension. The final number of these passes would be based on discussions with individual landowners.

Culverts would be placed according to the final engineering design. Coated with either a galvanized or polymer coating (not "asbestos-bonded" material), culverts would be designed to withstand a 25-year flood occurrence.

The Extension would require one bridge over Hanging Woman Creek Road, one bridge over Hanging Woman Creek, five bridges over the Tongue River, and a 600 foot tunnel (Figure 3-1). Designed to withstand a 100-year flood event, the bridges would be comprised of concrete piers and ballasted-concrete decks on steel girders. The Hanging Woman Creek road bridge would be 150 feet in length, while the Hanging Woman Creek bridge and one Tongue River bridge would be 400 feet long. The remaining four Tongue River bridges would be 500 feet long (Figures 3-2, 3-3, and 3-4).

Bridge construction would entail the driving of sheet pilings around the proposed pier locations to provide cofferdams for the placement of the bridge foundations. With foundations and piers in place, prestressed concrete beams would then be set on the piers and abutments to form bridge decking.

Upon completion of two bridges located on each side of the proposed tunnel site, construction of the 600 foot tunnel would commence. The tunnel would probably be advanced through the use of a tunnel shield. The excavation would be hand mined or mined through the use of a small excavator followed by the erection of liner plates. The liner plates would be made of steel or precast concrete and would be bolted together in place. The over-excavated area between the liner plates and the existing ground would be filled with grout and provisions made for water infiltration and drainage. Material from the tunnel would be used as fill material. The tunnel would then be faced with concrete.

During construction a road would be built along and within the proposed ROW. Most heavy equipment would be confined to this temporary road. Where the proposed rail line is isolated due to the Tongue River or large parcels of private land, temporary construction access roads, 20 feet in width, would be built. The location of the roads would be negotiated with affected landowners. After construction, the roads would be reclaimed.

Grading of the trackbed would begin with the removal and storage of topsoil. Scrapers, front-end loaders, power shovels, or draglines would be used in the excavation of cut areas. Blasting in the ROW and the casting of material outside the ROW is not anticipated, although charges may be set to fracture material. Scrapers or "belly dumps" would be used to transport material from cut areas to fill areas. Trucks would distribute water along the graded area for dust control and soil compaction. Borrow sites, averaging five acres in size, would be established only when fill material is needed in addition to that provided during excavation of the track bed.

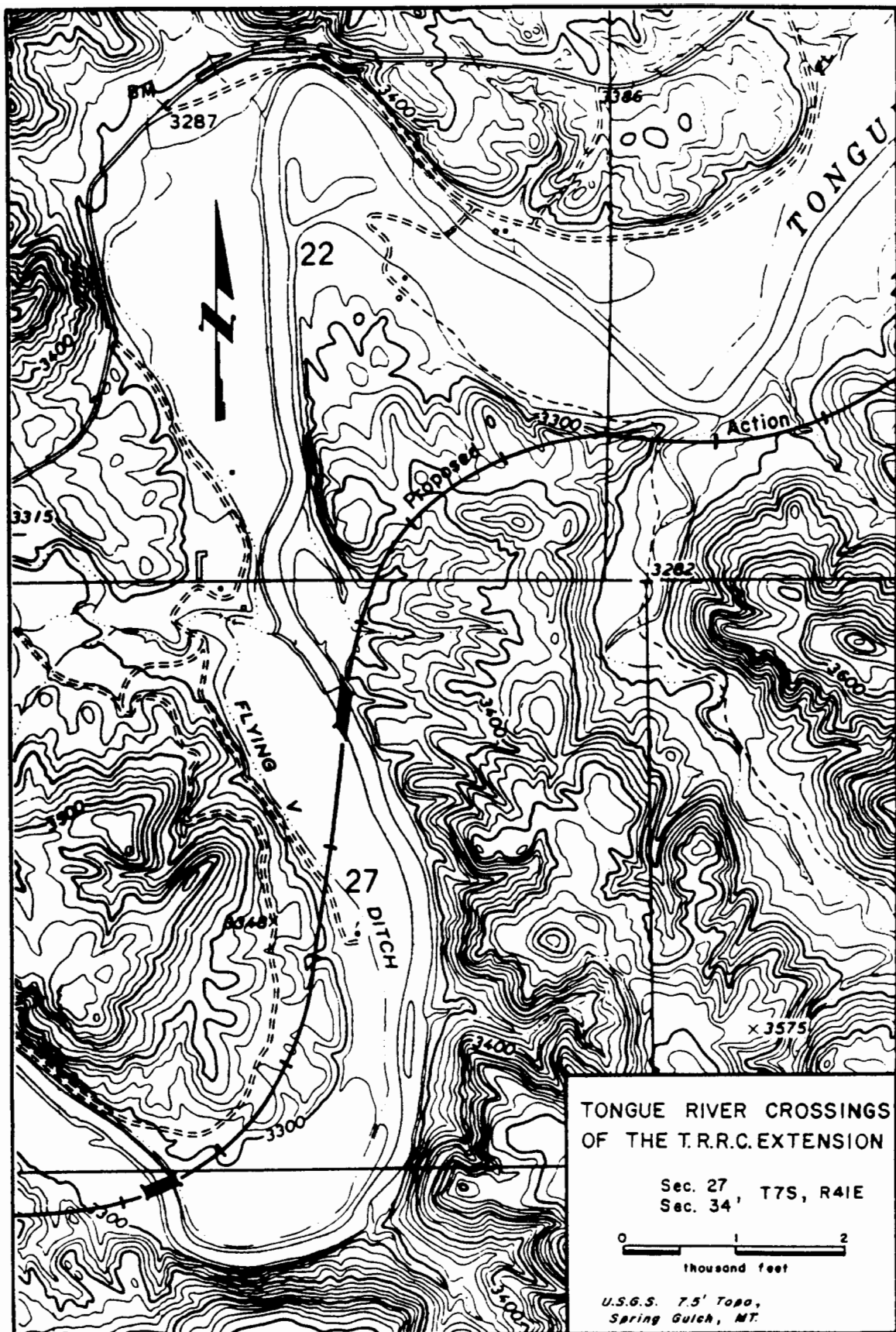


Figure 3-2. Tongue River crossings of the T R R C Extension.



3 - 6

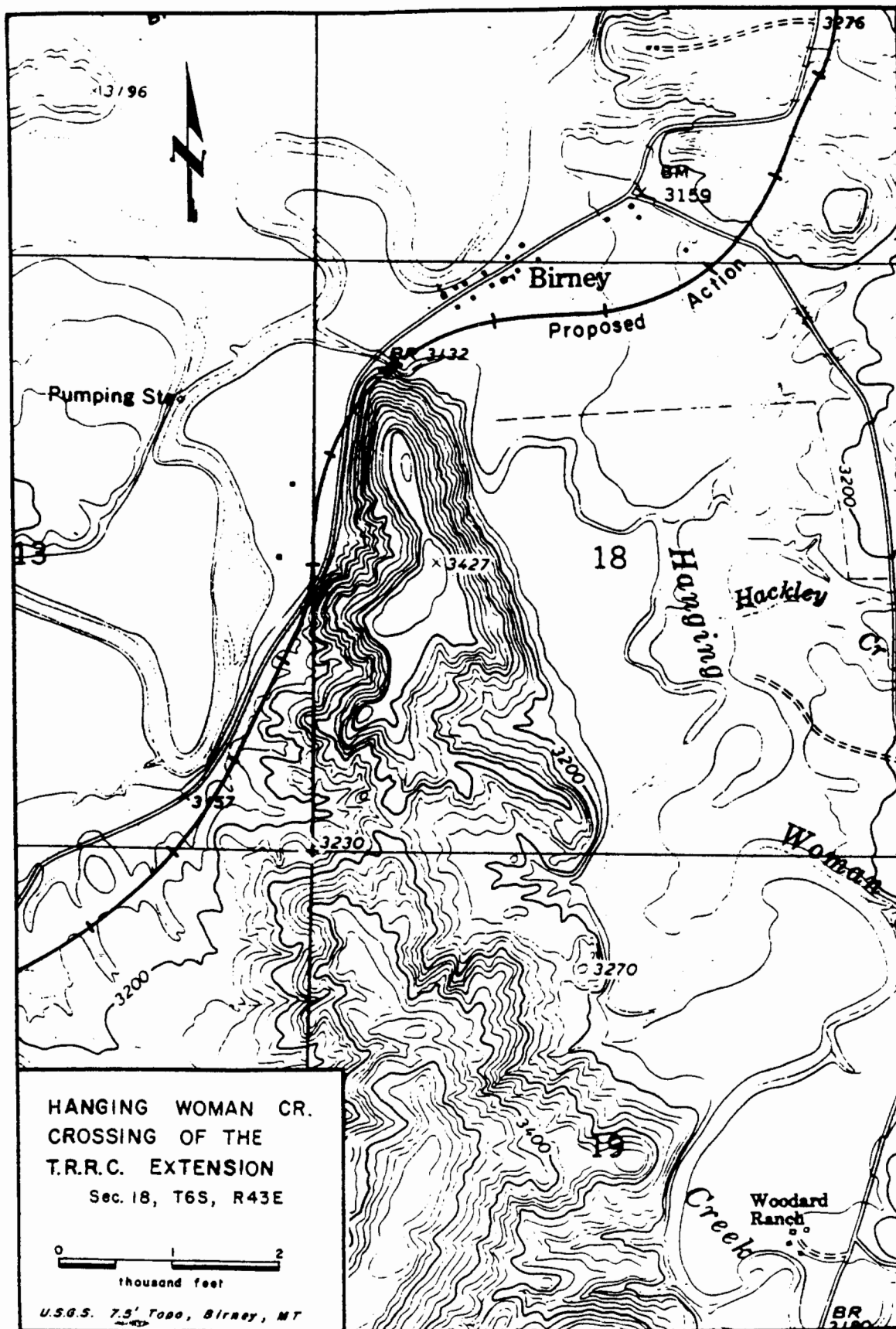


Figure 3-4. Hanging Woman Cr. crossing of the T R R C Extension.

After grading is completed, reclamation work would commence with the distribution of topsoil on side slopes. Areas would be seeded and mulched, and silt fences, plastic netting and other silt control devices would be applied. Borrow areas, maintenance yards and ROW disturbances would be revegetated.

Preparation of the railbed and reclamation of disturbed areas would be followed by the laying of track for the main line and for passing tracks and sidings. Trucks would distribute pre-plated ties and other track material along the roadbed. Work trains, operating in reverse and moving from Miles City and Decker, would lay welded track. Terminal facilities at Miles City would be constructed concurrently with the construction of the main track. When the track-laying work is completed, signal and communication facilities would be installed. Ballast placement and final clean-up would complete the construction activity required for the rail line.

During construction, at least seven precautions would be followed to minimize any potential impacts:

1. Disposal of all construction debris on land to prevent its entry in a waterway or wetland;
2. Operation of equipment for handling and conveying materials to prevent dumping or spilling materials into the water;
3. Placement of all dredged or excavated materials (except for that required for cofferdams, abutments, piers, foundations, etc.) on an upland site above the ordinary high water line to prevent their return to the waterway;
4. Performance of all work in a waterway in a manner to minimize increases in suspended solids and turbidity;
5. Careful handling of petroleum products (gas, diesel fuel, lubricating oil, solvent, etc.), the principal hazardous materials hauled and used during the construction period, to prevent their entry into the water;
6. Limited clearing of vegetation;
7. Reseeding disturbed areas with indigenous vegetation.

3.1.2 Operation and Maintenance

Each TRRC coal train would be comprised of three 3,000-horsepower diesel locomotives and 112-125 coal hopper cars. It is likely that BN locomotives would power most, and possibly all, unit trains. The TRRC would own or lease only work equipment and a few medium power locomotives. There would be no helper locomotives and no caboose. Each car would carry approximately 104 tons of coal, and each train would carry

roughly 12,000 net tons. Trains would operate 24 hours a day, 365 days a year. Train frequency would depend upon the amount of coal to be shipped.

The TRRC would utilize two-person crews, with Miles City as the home terminal location for these crews. The number of crews would depend on the number of trains operating. Ten train crews (20 employees) would be required at traffic levels of 21 million tons a year. In most cases it should be possible for crews to make the round trip within the statutory 12-hour limit for crews on continuous duty. The TRRC's current consideration of speeds up to 50 miles per hour for both loaded and unloaded trains would increase the likelihood of trains being to make a round trip within the 12-hour legal limit for continuous duty.

The work force would total 64 employees with the addition of train dispatchers, trainmasters, carmen/inspectors, a signal/communications technician, maintenance of equipment employees, and a general manager and administrative staff. Maintenance employees, like train crews, would increase in number as more trains operate and maintenance requirements increase. Most of these people would be located at the TRRC's headquarters in Miles City, and the remainder at the Ashland facilities.

Projected coal volumes to be transported by the TRRC and the number of trains required in a specific year of operation are presented in Tables 1-2 and 3-1. These figures are similar to those used in the 1985 TRRC EIS for the "medium scenario" and differ only to reflect the fact that 12 million tons of coal annually would initially be hauled from existing mines in the Decker/Spring Creek area. At the end of the analysis period (2010), that figure would have risen to 15 million tons. In addition, it is estimated that approximately 18 million tons annually would eventually be shipped by TRRC trains from new mines in the Ashland/Birney area. Since the figures used in this analysis are comparable to those used in the 1985 TRRC EIS, it has been assumed that the "High Scenario" figures used in that earlier document are appropriate for the current analysis (see Tables 1-1 and 1-2).

Table 3-1. Trains Hauling Coal Per Day (Round-trips).¹

	On the TRRC Extension	Originating from the Ashland-Area Mines	On the Entire TRRC Line
1996	4	1	5
2000	4	2	6
2005	5	2	7
2010	5	4	9

¹ Based on the CSI assumptions that each train hauls a 11,615-net-ton load and that trains run 365 days out of the year.

Table 3-2. Summary Impact Table.

	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
4.10 TERRESTRIAL ECOLOGY		
Vegetation and wildlife habitat lost due to the right-of-way (acres)	637	781
4.11 AIR QUALITY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Construction equipment diesel fuel combustion (T/mile/year)	0.16	0.17
Particulate Matter (TSP)	0.17	0.17
10 Micron Particulates (PM-10)	0.19	0.19
Sulphur Dioxide (SO ₂)	0.51	0.53
Carbon Dioxide (CO)	0.11	0.12
Hydrocarbons (HC)	1.56	1.61
Nitrogen Dioxide (NO ₂)		
Disturbed land during construction (T/mile/year)	1.24	1.21
Construction (PM-10)	1.11	1.06
Windblown dust (PM-10)		
Emission rates from locomotive diesel fuel combustion for the year of maximum operations (T/mile/year, 2010)	0.58	0.69
Particulates (PM-10)	0.61	0.61
Sulphur Dioxide (SO ₂)	2.96	3.52
Carbon Monoxide (CO)	0.65	0.77
Hydrocarbons (HC)	7.09	8.44
Nitrogen Dioxide (NO ₂)		
4.12 NOISE	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Sensitive receptors		
500-foot construction contour	28	30
2,000-foot construction contour	51	48
70-dBA contour	0	0
65-dBA contour	14	16
55-dBA contour	51	48
4.14 CULTURAL RESOURCES	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Known sites within the right-of-way	8	5
Known sites within 1,500 feet of centerline	44	40

Table 3-2. Summary Impact Table.

4.4 SAFETY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
TRRC trains (1995-2010) Total grade-crossing accidents Total derailments	<1 3.459	<1 4.353
Downline impacts ³ Accidents Derailments	589 797	589 797
³ See TRRC ER (1991:4-49); TRRC DEIS (1983: Table 4-14).		
4.5 ENERGY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Net energy balance, medium coal production scenario (trillions of BTUs, 1995-2010)	4,861.31	4,859.42
4.6 TONGUE RIVER DAM	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Nearest location to rail line (mile distance)	1	6
4.7 SOILS AND GEOLOGY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Soils with potential for slump (miles)	3.2	4.5
Critical soils affected (acres) ⁴	0	0
⁴ See TRRC ER (1991:4-76)		
4.8 HYDROLOGY AND WATER QUALITY	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Possible wetland impact locations	7	3
Gross erosion during construction (T/year)	54,200	63,100
Average short-term increase in TSS (mg/l) Tongue River Otter Creek Rosebud Creek	22 19 0	23 19 0
4.9 AQUATIC ECOLOGY		
Number of intermittent stream crossings	98	43
Number of perennial stream crossings	1	1
Number of river crossings	5	1

Table 3-2. Summary Impact Table.

Total cumulative net fiscal balance, 2010 Big Horn County (\$000) ² Custer County (\$000) Powder River County (\$000) Rosebud County (\$000)		
	4,301 13,721 36,342	4,301 13,721 36,342
² See TRRC ER (1991:4-29).		
4.3 TRANSPORTATION	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Number of rail/roadway crossings	10	8
Vehicle delays due to TRRC trains, 2010 Number of delayed trips per day Percentage of trips delayed (%)	23 <2	19 <2
Projected Daily Traffic Volume, 2010		
FAP 37 Junction I-90 to Lame Deer Lame Deer to Ashland Ashland to Junction w/Custer Creek Road to Mines 2 & 3 (FAS 484) Junction w/Otter Creek Road to Mines 2 & 3 (FAS 484) to Broadus	2,494 3,271 2,164 911	2,494 3,271 2,164 911
FAP 39 Forsyth (I-94) to Colstrip Colstrip to Lame Deer	1,572 1,583	1,572 1,583
FAS 484 Otter Creek Road FAP 37 to Mines 2 & 3 (FAS 484)	682	682
Unlocated Mine Road Ashland to Road XX to Mine 5	426	426
FAS 566 Ashland to Montco Birney to Montco Birney south (Junctions w/FAS 314) Four Mile Bifurcation to Junction w/FAS 314 Tongue River Reservoir Bifurcation to Junction w/FAS 314	797 201 101 101 101	797 201 101 101 101
FAS 314 Four Mile Bifurcation's Junction w/FAS 314, to Decker Decker to Sheridan	564 904	564 904
Northern Cheyenne Roads Birney Village to Ashland Birney Village to Lame Deer	430 381	430 381

Table 3-2. Summary Impact Table.

4.1 LAND USE	TRRC PREFERRED ROUTE [40.3 miles]	FOUR MILE AL- TERNATIVE [50.2 miles]
Right-of-way acquisition (acres)		
Agricultural land		
Irrigated	33	26
Non-irrigated, grazing	1,184	1,330
Total agricultural land	1,217	1,356
Land in other uses	31	0
Total land	1,248	1,356
Additional land lost (acres)		
Due to irrigation impact	70	20
Due to severance, Cormorant Estates	60	0
Total loss of land use (acres)	1,378	1,376
Affected landowners		
Number with agricultural land	22	26
Number with lands in other uses	1	0
Total number of affected owners	23	26
Existing improvements affected		
Number of ditches intersected	5	7
Houses, Cormorant Estates	1	0
Proposed improvements affected		
Homesites, Cormorant Estates	2	0
Cumulative loss of production value (\$s) ¹	208,494	222,912
¹ Based on the table above, the total agricultural land lost for the TRRC's route would be 1,287, i.e., 1,217 + 70; for the Four Mile Creek Alternative, 1,376, i.e., 1,356 + 20. The total acreage is multiplied by the assumed value for agricultural land of \$162 per acre.		
4.2 SOCIAL AND ECONOMIC	TRRC PREFERRED ROUTE	FOUR MILE AL- TERNATIVE
Construction population for 1992, peak year		
Direct employment	395	395
Indirect employment	600	600
Total employment	995	995
Impact population	711	711
Construction expenditures in the local economy		
Construction salaries (million \$)	24	24
Construction materials (million \$)	45	45
Operation and maintenance population for 2010, peak year		
Direct employment	126	126
Indirect employment	191	191
Total employment	317	317
Total impact population, 2010 (medium production scenario)	3,429	3,429

Mile Creek Alternative is the only viable alternative for the proposed Extension. If the railroad were to use this route, the alignment would diverge from the Tongue River at that stream's confluence with Four Mile Creek. The alternative alignment would extend southeast along Four Mile Creek, climbing a fairly steep grade from the Tongue River. It would turn southwestward approximately three miles from the divergence point and continue on that course to its juncture with the proposed Extension near the Tongue River Reservoir (see Figures 1-1).

From a construction standpoint, the Four Mile Creek Alternative would require more earthwork than would the proposed Extension. Otherwise, the construction process would be about the same for this alternative as for the proposed alignment. This alternate alignment also is longer than the proposed Extension. Operationally, the Four Mile Creek Alternative would be more difficult to maintain and would utilize more locomotive fuel. The strain on loaded locomotive descending the steep Four Mile Creek grade also would increase the incidence of repairs on rolling stock and motive power.

Because of the operational problems associated with the Four Mile Creek Alternative, the TRRC would prefer the proposed alignment along Tongue River for the railroad.

3.3 SUMMARY COMPARISON OF TRRC PREFERRED ALIGNMENT AND THE FOUR MILE CREEK ALTERNATIVE

Table 3-2 below provides a summary that compares the anticipated effects of TRRC's preferred alignment and the Four Mile Creek alternative. Chapter 4 provides a detailed description of the anticipated environmental effects.

Most of the coal to be carried on the TRRC is destined for markets in Minnesota, Wisconsin, Michigan, Illinois. Other possible destinations are in Ohio, Pennsylvania and New York. The distribution of TRRC trains along the downline corridors to these destinations would remain the same as that proposed in the 1985 TRRC EIS (see Figure 1-2).

After loading at either the Spring Creek terminus or Terminus Point 1 for the Montco Mine, the trains would continue to the Miles City yard facility. Minimal switching at the Miles City terminal would occur, although locomotives and cars could be inspected and switched out for maintenance and repair, at the private car repair facility at Miles City. The cars and locomotives of the TRRC trains, however, will likely be inspected by BN at its Glendive facility. BN also will likely undertake the required locomotive servicing and fueling at Glendive. The Miles City terminal would not include a fueling facility.

According to the Federal regulations (49 CFR 213), the TRRC would be required to maintain the rail line to Class IV Standards to operate safely at 50 MPH. Initial maintenance would require program track and structures maintenance and, in the initial years of operation, such work will likely be contracted out. After 10 years the TRRC might provide for its own heavy program maintenance.

Access to the ROW for the maintenance of the rail line would be confined to public grade crossings or to private grade crossings where access agreements have been made with the landowner. Access for maintenance equipment along the ROW would be provided via the railroad embankment. Maintenance primarily would be accomplished with "High-Rail" equipment traveling along the rail line. Vegetation control along the track area would be undertaken by either mechanical means or by applying herbicides. Only those chemicals approved and licensed by the state of Montana would be used to control trackside weeds.

The TRRC contingency plans for emergencies, including derailments and natural disasters, would require the company to identify the location of heavy duty cranes and other re-railing equipment and estimate the time needed to get emergency equipment on site. The TRRC also would arrange other emergency procedures with the BN and make available maps and access points to state police, local fire departments and other emergency response teams.

3.2 FOUR MILE CREEK ALTERNATIVE

Early in the planning stages for this project, TRRC identified a possible alternative route for the railroad north of the Tongue River Dam. This has been referred to as the "Four Mile Creek Alternative." Given the restricted geography of the upper Tongue River region in Montana, we concur with TRRC's engineering data which concludes that the Four

3.4 NO ACTION ALTERNATIVE

The "No Action Alternative," or, in other words, the no-build alternative, represents the scenario that will most probably occur if the ICC denies the TRRC's request to construct the proposed Extension.

Since TRRC's rail line from Miles City to Ashland has been approved by the ICC, it is reasonable to conclude that even if the Extension is not approved TRRC would construct and operate the portion of the line that has already been approved at some time in the future.

Coal from the Spring Creek/Decker area is presently shipped by rail over the BN line between Sheridan and Forsyth. Approximately 20 round-trip trains per week travel over this line. An additional seven trains per week travel the route from Gillette to Sheridan and Forsyth. This traffic will presumably continue for the foreseeable future.

A portion of the BN line extends through the Crow Indian Reservation in Montana. The line is currently subject to a long term lease involving the Crow Indian Tribe, with a disputed termination date as early as 1992. It may be necessary for BN to renegotiate this lease in order to continue its use of the current rail line through the Crow Indian Reservation. If the lease is not renewed, BN may consider alternatives such as transporting coal over its southern line through Wyoming. This would add considerable miles to Upper Midwest destinations.

3.5 RELATED ACTIONS

The proposed TRRC railroad would serve existing and potential surface coal mines in the Tongue and Powder River Basins of Montana and Wyoming. The 1985 TRRC EIS suggested that in addition to the permitted Montco Mine near Ashland, the TRRC could serve four additional mines in the Tongue River or Otter Creek areas. The projection for overall tonnage to be carried on the TRRC remains comparable to the 1985 estimates for the medium and high scenarios. However, as noted above, in the early years of operation, the TRRC plans to haul coal from three existing surface coal mines at Spring Creek/Decker. New mines in the Ashland/Birney area will develop in subsequent years.

As is evident from the 1985 TRRC EIS, many of the more significant impacts from the proposed railroad actually derive from the new mines. That general conclusion applies to the analysis of the proposed Extension or the Four Mile Creek Alternative. To the extent that there may be fewer new mines in the Ashland/Birney area during the analysis period (2010), the cumulative impacts from mining may be less than those reported in the 1985 TRRC EIS. Only significant differences in related actions are reported in the present analysis. This principally concerns socioeconomic impacts to residents of the four affected counties.

CHAPTER FOUR

4.0 ENVIRONMENTAL IMPACTS FROM THE PROPOSED EXTENSION

The environmental impacts discussed below are associated with the proposed Extension and include impacts from TRRC's preferred alignment and from the Four Mile Creek Alternative. TRRC's preferred alignment would affect lands on the east side of the Tongue River roughly from a point 7 miles south of Ashland, Montana to Decker, Montana. The only feasible alternative alignment for the railroad, the Four Mile Creek Alternative, would avoid approximately 10 miles of the Tongue River just north of the Tongue River Dam and would, instead, traverse upland areas west of the Tongue River Reservoir.

Anticipated impacts from TRRC's preferred alignment or the Four Mile Creek Alternative are based upon the coal production and traffic volumes presented in Tables 1-2 and 3-1. This data is used in this Chapter to analyze potential impacts to the additional areas that would be affected by the proposed Extension. Section 4.13 describes the impacts to the Northern Cheyenne Reservation and to the Crow Indian Reservation.

As discussed in Chapter One, since only the source of coal has changed, the anticipated volumes of coal moving over the already approved portion of the line from Ashland to Miles City should be the same as described in the 1985 TRRC EIS. Therefore, the impacts which were identified and analyzed for that portion of the line will remain essentially the same. Any anticipated changes to the 1985 TRRC EIS are discussed in the following sections.

4.1 LAND USE

Construction of the proposed Extension would affect existing land use in a number of ways. Some land would be acquired for the right-of-way (ROW) and would be lost to its present use. Other land would be intersected by the rail line and could be considered "severed" from its existing use. Some of the potential impacts would be of short-term duration, such as acquisition for staging and borrow areas. Other impacts would be longer term in nature, such as ROW acquisition and facility construction.

4.1.1 Construction

4.1.1.1 Right-of-Way

Acquisition

Construction of the proposed Extension would require the acquisition of approximately 1,248 acres of land for the ROW. There are a total of 22 affected landowners on TRRC's preferred alignment and 26 landowners on the Four Mile Creek Alternative. Approximately 87 percent of the ROW under either alternative is privately-owned and most of that land is used for agricultural purposes. Of the remaining 13 percent which is public land, 8 percent is Federally owned and 5 percent is owned by the State of Montana. The Bureau of Land Management (BLM) has jurisdiction over the Federal land. Much of the state and Federal lands (surface) are leased to private parties for agricultural purposes.

As shown in Table 4-1, approximately 33 (2.6%) acres of irrigated cropland would be acquired for the preferred alignment, of which 6.73 (.5%) acres could be considered Prime Farmland, based on the United States Department of Agriculture (USDA) designation criteria. The remaining 1,184 (97.4%) acres of ROW would consist of unirrigated grazing land. In contrast to the preferred alignment, the Four Mile Creek Alternative would require acquisition of 1,356 acres, including 26 (1.9%) acres of irrigated cropland of which 2.95 acres could be considered Prime Farmland. The balance of 1,330 (98.1%) acres would be composed entirely of unirrigated grazing land.

Severance

Construction of the proposed Extension could affect land use in the project area by severing land parcels. Severance is defined as the railroad ROW traversing a contiguous land parcel in such a manner as to render the parcel unsuitable for continued current use. Unirrigated grazing land, where cattle passes can be installed to allow the uninterrupted movement of cattle between pastures is not considered to be severed. As reported in the 1985 TRRC EIS, ranchers have noted that cattle may be reluctant to use cattle passes, especially those that are used infrequently. This situation may increase the time taken to herd cattle between pastures. The use of holding pens at the cattle passes may help to mitigate this impact.

Irrigated cropland, employing mechanical irrigation systems, represents the most important type of cropland that could experience severance. The preferred alignment and the Four Mile Creek Alternative, however, would not include any irrigated lands with mechanical systems. All the affected cropland is presently irrigated by gravity systems. TRRC has agreed to construct any culverts required to continue the flow of ditches crossed by the ROW. This mitigation measure should insure that nearly all cropland that was irrigated prior to rail line construction would continue to be irrigated and used to raise crops. A worse case analysis suggests that three parcels of land, totalling 70 acres, could be reduced to such small sizes that the ranchers might find them too impracticable to cultivate (Figure 4-1).

Table 4-1. Tongue River Railroad Extension: Land Use By Category.

CATEGORIES	Preferred Alignment		4 Mile Creek Alternative		Comments
	Acres	%	Acres	%	
1111 Valley Bottom Gravity Irrigated Cropland in Crops	3.3	0.3	3.3	0.2	
1121 Valley Bottom Sprinkler Irrigated Cropland in Crops	0	0	0	0	
1211 Valley Bottom Fallow Gravity Irrigable Cropland	11.7	0.9	5	0.4	
1511 Valley Bottom Gravity Irrigated Grazing Land in Grass or Hay	17.5	1.4	17.5	1.3	
1512 Valley Bottom Gravity Irrigated Grazing Land in Grass & Shrubs	0	0	0	0	
1513 Valley Bottom Gravity Irrigated Grazing Land in Cottonwood & Willows	0	0	0	0	
1602 Valley Bottom Dryland Grazing	449.8	36	449.8	33.2	
1702 Riverine Grazing Land, Naturally Sub-irrigated in Grass & Shrubs	0	0	0	0	
1703 Riverine Grazing Land, Naturally Sub-irrigated in Cottonwoods & Willows	2.5	0.2	2.5	0.3	
1802 Towns & Cemeteries - Land in Grass & Shrubs	6.7	0.5	6.7	0.5	Impact to Town of Birney Only
2211 Upland Gravity Irrigated Cropland	0	0	0	0	
2602 Upland Dryland Grazing Land in Grass & Shrubs	504.7	40.4	585.2	43.1	
2604 Upland Dryland Grazing Land in Ponderosa & Juniper	252	20.2	252	18.6	
2902 Upland Airstrips in Grass	0	0	0	0	
TOTALS	1248.2	100	1356.4	100	
Preferred ROW 32.5 acres irrigated Non-Irrigated Land 1212.3 97.4%					
4 Mile Alternative 25.8 acres irrigated Non-Irrigated Land 1333.3 acres 98.1%					

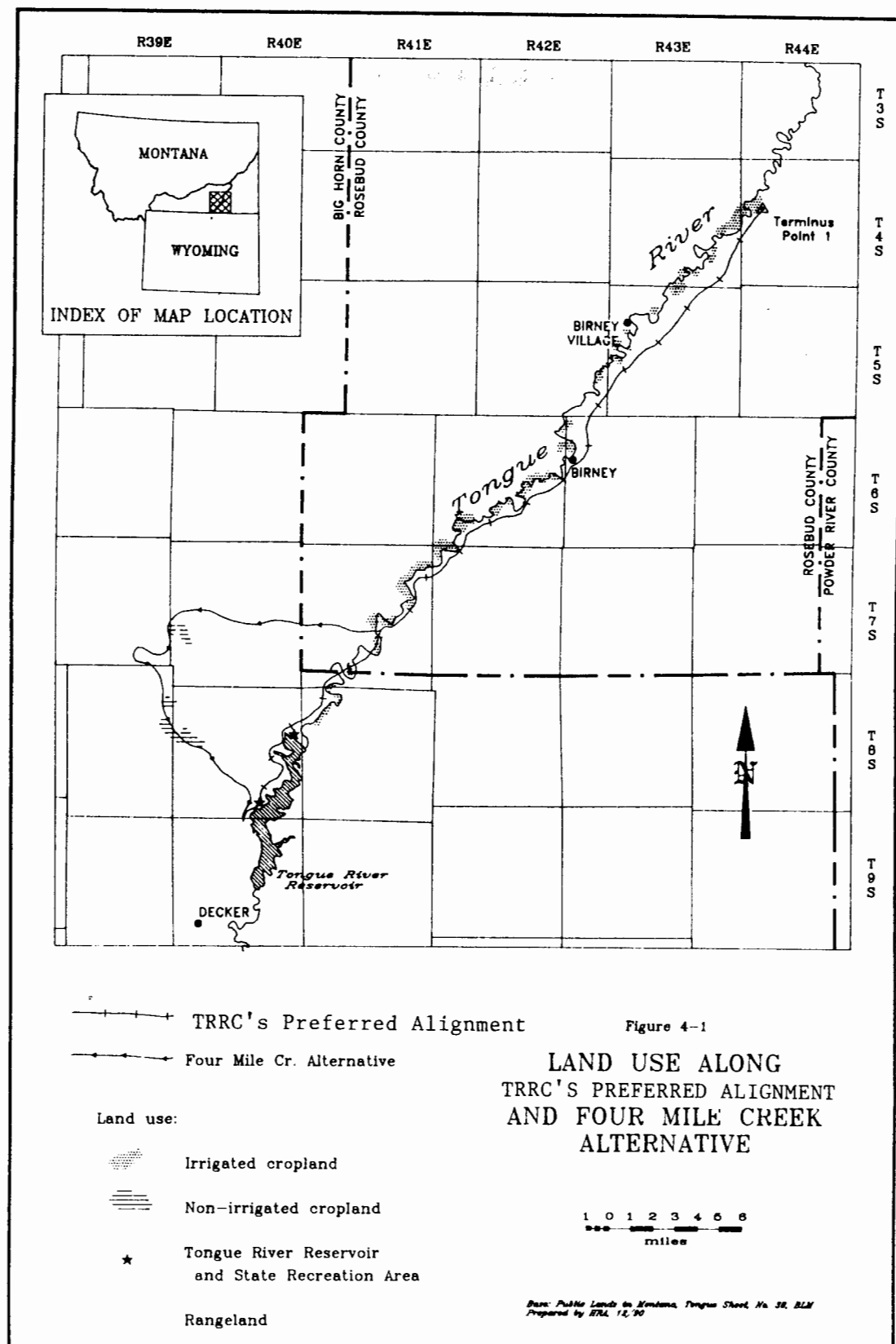


Figure 4-1. Land use along TRRC's Preferred Alignment and the Four Mile Creek Alternative.

Displacement of Capital Improvements

The route of the proposed Extension traverses the grazing lands bordering the valley bottomland. Consequently, neither the preferred alignment nor the Four Mile Creek Alternative would displace many capital improvements. A main irrigation ditch and 4 lateral ditches would be intersected by the preferred alignment. Two (2) additional lateral ditches would be affected by the Four Mile Creek Alternative. No mechanical irrigation systems would be impacted by either the preferred alignment or by the Four Mile Creek Alternative.

Effect on Agricultural Productivity

The total amount of agricultural land taken out of production by the construction of the ROW for the preferred alignment would equal 1,217 acres. Total agricultural land taken out of production by the construction of the ROW for the Four Mile Creek Alternative would equal 1,315 acres. Assuming an overall value for agricultural land of \$162 per acre, the loss associated with agricultural land taken by the preferred alignment would be \$208,494. The loss of agricultural land taken by the Four Mile Creek Alternative would be \$222,912.¹

Impacts to Other Land Uses

The principal land use in the project area is for agricultural purposes. However, there are two other land uses, recreation and second-home subdivision sites that also would be affected by the proposed Extension.

The State of Montana manages the Tongue River Reservoir State Recreation Area adjacent to the Tongue River Reservoir. The recreation area was created in 1975 and 579.9 acres were leased by the Montana Department of Fish, Wildlife and Parks from the Montana Department of Natural Resources in 1983. The duration of the lease is 25 years with an expiration date of 2008. Public access to the recreation area is leased from Decker Coal which owns adjoining land. The Montana Department of Fish, Wildlife and Parks estimates that, in 1989, approximately 32,000 people visited the area. Traffic counts indicated that during the summer months 75.6 vehicles per day used the area. Revenue for 1989 was approximately \$15, 609.

Approximately 23 acres of land lying within the recreation area would be acquired by TRRC for TRRC's preferred alignment. In addition, the road providing access to the recreation area and reservoir shoreline, would be severed at both ends. Without crossings, the severance would eliminate access to the recreation area. TRRC states that it would realign

¹ The \$162 per acre value is the highest per acre value for farm land reported for Big Horn and Rosebud counties in the Montana County Profiles Supplements for Big Horn and Rosebud Counties (1989). In the Big Horn County Supplement Table 9.28 listed the 1987 average farmland value per acre as \$162 for all farms and as \$160 for farms with sales of \$10,000 or more. In the Rosebud County Supplement Table 9.28 listed the 1987 average farmland value per acre as \$108 for all farms and as \$97 for farms with sales of \$10,000 or more.

the county road to parallel the rail line, providing new access to the recreation area and reducing numerous public grade crossings.

The Four Mile Creek Alternative would avoid impacts to the Tongue River Reservoir Recreation Area.

Construction of TRRC's preferred alignment also would impact 2 of the 16 tracts at Cormorant Estates, a recreation homes development. The TRRC alignment would extend across roughly .5 miles of the area and would require the acquisition of approximately 8 acres. The two affected tracts at Cormorant Estates would be severed. In addition, the rail alignment would pass close to one of the three existing residences at Cormorant Estates. Construction of the preferred alignment could require the relocation of this residence. There are available tracts at Cormorant Estates for the relocation of this cabin.

Potential impacts from severance of the two tracts could be mitigated by providing alternative means of ensuring access to the property. However, the presence of the railroad through these recreation home sites could reduce the market value of the individual tracts.

The Four Mile Creek Alternative would avoid impacts to the Cormorant Estates.

4.1.1.2 Facilities Acquisition

TRRC originally proposed constructing terminal facilities at the abandoned Milwaukee Terminal in Miles City. In 1984 TRRC proposed the Burlington Northern Option which was later altered in 1988 to reduce the impact to the Miles City Fish Hatchery. Currently, TRRC would need to obtain an easement from the Miles City Fish Hatchery for 13.23 acres in order to complete TRRC's connection to the BN line. The acreage would be required only for the ROW width and for the east and west Y-trackage.

As referenced in the 1985 TRRC EIS, a maintenance-of-way facility would be located at Ashland. This facility would be sufficient to house a small crew that would be stationed in Ashland. The maintenance-of-way facility would occupy an approximately 2 acre urban site within Ashland.

4.1.1.3 Acquisition of Borrow Sites

TRRC anticipates that much of the sub-ballast material required for the railroad grade would be extracted from cuts as the construction of the rail line proceeds. Since a shortage of material is possible, the construction of three or four borrow pits, each five acres in size, might be required. Since the sites of the borrow pits have not been identified, the land uses affected by their construction are not known. The lands would be impacted only during the time of excavation. Long term impacts would be mitigated by reclamation.

4.1.2 Operation and Maintenance

Impacts associated with the operation and maintenance of the proposed Extension would be similar to those reported for the 1985 TRRC EIS. As was the case in 1985, ranchers have expressed particular concern over 1) the railroad's potential interference with access to their ranch; 2) the possibility of train-caused wildfires; 3) the propagation of noxious weeds by passing trains; and 4) trespass.

Ranchers have expressed a concern for the potential for train-caused wildfires. The concern is particularly acute given the topography of the upper Tongue River valley and the isolated nature of many areas.

Reports of train-related fires along the Sarpy Creek and Gillette/Orin rail lines, as discussed in the 1985 TRRC EIS, suggests that TRRC could expect one fire per 50,000-170,000 train miles. Experience suggests that most of these fires would be small, rarely exceeding 5 acres. However, given the limited access along the proposed Extension, there is the possibility that any fire could be larger than the average if not quickly suppressed.

TRRC has agreed to prepare a fire response and suppression plan for the railroad. Such a plan would include vegetation control along the ROW, ROW surveillance, and the establishment along the ROW of fire control units consisting of designated maintenance crews who would respond to ROW fires in specific areas. Moreover, TRRC would be a new railroad, with "state-of-the-art" construction and equipment. Therefore, the possibility of train-caused fires should be reduced.

Ranchers also have expressed concern about the propagation of weeds along the ROW. Weeds can reduce crop yields and can be a fire hazard. TRRC states that it would develop a weed control program that would focus primarily on mechanical, not chemical, means of control. The use of mechanical control measures should ensure that harm is not done to lands adjacent to the ROW. (The type of weed control, whether mechanical or chemical, would depend on such factors as the time of year, dryness, and proximity to a water course.) Additionally, TRRC's ballast would be cleaned before placement on the ROW. This should limit the possibility of introduction of noxious weeds to the area.

Finally, ranchers have noted that the presence of a ROW adjacent to their lands could offer opportunities for trespass. Given the isolated nature of the upper Tongue River valley, trespass would principally be a problem during construction of the railroad. Liaison between landowners and railroad construction personnel should be sufficient to identify trespass problems that arise and to find solutions to the problems. Since access to the ROW would be limited to TRRC employees after construction of the railroad, long-term trespass problems should not occur.

4.2 SOCIAL AND ECONOMIC

4.2.1 Introduction

This environmental analysis describes the anticipated impacts that the proposed Extension would have on the study area within a five county region of Big Horn, Custer, Rosebud and Powder River Counties, Montana and Sheridan County, Wyoming. The analysis assumes coal production under the coal scenario presented in Chapters 1 and 3. As discussed in those chapters, the estimated traffic for the extension closely approximates the medium scenario traffic which was the basis for the analysis of related impacts in the 1985 TRRC EIS. Any estimated differences between the medium scenario and the high scenario, which was also analyzed in the 1985 TRRC EIS, are noted where appropriate. Differences between impacts associated with the proposed Extension and those related to the Four Mile Creek Alternative are also noted.

Socioeconomic impacts from the construction of TRRC's original 89-mile rail line from Miles City to Ashland, Montana and the related mine development were analyzed in the 1985 TRRC EIS. That information has been updated to include changes in TRRC operation and projected mine development, including size and sequencing. The updated information also incorporates revisions to regional growth population estimates, and current facility needs and costs.

The following changes have occurred since publication of the 1985 TRRC EIS, all of which have been considered in developing the analysis for this draft EIS.

1. The adjustment of the time frame for beginning construction of TRRC and Montco Mine. TRRC plans to begin construction in 1993. Assumptions about Colstrip 3 and 4 labor being available for construction of the railroad have changed.
2. In the first few years of the new proposed TRRC operation, the major haulage of coal would originate from the Decker/Spring Creek area (12 million tons per year) and Wyoming mines (3 million tons per year). It is projected that 2 million tons per year would originate from Montco (1996). By 2010, the amount of coal hauled from the Decker/Spring Creek area would increase to 15 million tons per year, the Wyoming coal haulage would increase to 6 million tons per year and the continued production of Montco and three projected mines in the Ashland area could reach an additional 18 million tons per year.

3. Because of the adjustment in the number of mines in the Tongue River Valley and the anticipated haulage from existing mines in the Decker/Spring Creek area, population impacts and fiscal impacts have been revised.
4. Big Horn County was not part of the original study area. Because of the TRRC Extension, Big Horn County would receive positive fiscal impacts from increased property taxes levied on the TRRC. TRRC would haul coal at levels presently being mined and it is anticipated that there would be no new population impacts associated with the Decker/Spring Creek mining operations.
5. Sheridan County, Wyoming was not included in the original study area. Sheridan-based BN jobs could be affected by construction of the proposed Extension and, therefore, it has been included in this document for impact purposes.
6. It is expected that some construction materials for the TRRC rail line will be purchased in Sheridan. Thirty (30) percent of the fuel needed for TRRC construction is expected to be purchased in Sheridan. In addition, 10% of the bridge materials; 35% of the fencing and related reclamation materials; 30% of the cattleguards and 40% of the building supplies would likely be purchased there.

Most of the socio-economic impacts associated with the development of the railroad and mines would be mine-related. The impacts from population increases associated with the railroad would be minimized during railroad construction by establishing construction centers. The population increases associated with the operation of the railroad are likely to be centered in Miles City, an established community that can easily absorb the railroad-related population. All four Montana counties would receive positive fiscal benefits from the construction and operation of the railroad.

It is anticipated that existing coal mines would provide 88 percent of the coal hauled in the first five years; 69 percent of the coal hauled in the second five years; 58 percent of the coal hauled in the third five years and 50 percent of the coal hauled in the last five years. Because of this, mine-related population increases and short-term negative fiscal impacts associated with those population increases would be decreased by almost one half. Although development of the proposed mines in the Ashland area would cause growth-related impacts, these are less than the original proposal. The fiscal impacts of the mine-related population growth would offset by the revenue that the mines generate.

4.2.2 Construction

4.2.2.1 Direct Employment

Construction of TRRC's entire rail line from Miles City to Decker could begin in 1993 and continue until 1996. The construction season would, on the average, extend for seven months, depending upon weather. The total work force on the project would fluctuate between 20 persons in the non-construction months to as high as 728 at peak construction. The average work force during all months would be 315; the average work force during construction periods would be 487 persons. Forty (40) percent of the anticipated construction work force likely would derive from the local area and would be hired by the construction contractor. Sixty (60) percent would be comprised of non-local workers. Typically, these workers follow large construction projects.

Of the forty (40) percent of the construction work force from the local area, it is anticipated that the breakdown by community would be as follows:

Miles City	25%
Sheridan/Decker	25%
Billings	10%
Broadus	10%
Forsyth	10%
Hardin	10%
Lame Deer/Crow Agency	5%
Ashland	5%

The sixty (60) percent of the work force that is non-local would reside in five construction centers. The location of the main construction centers and percentage of the non-local work force that would reside there is as follows:

Miles City	30%
Cow Creek Area	15%
Ashland	20%
Birney	15%
Decker	20%

The construction centers in Ashland, Birney, Decker and Cow Creek area would be self-contained, thus minimizing impacts to the local areas. The construction centers would supply laundry, bathing and food service facilities and would have their own water, power and waste facilities. TRRC would assure that sufficient housing/trailer facilities and accompanying support facilities were in place prior to beginning construction activities and for all phases of the construction period. The facilities would comply with all applicable state and local regulations.

4.2.2.2 Impacts to the Local Economy

Impacts to the local economy from construction would be largely the same under TRRC's preferred alignment or the Four Mile Creek Alternative. The expenditures for construction salaries, materials and services would benefit the local economy. Railroad construction salaries are expected to total more than \$24 million. Over \$45 million would be spent locally. A breakdown of location of these purchases by location is shown in Table 4-2 and Table 4-3.

These expenditures for materials also would create indirect employment opportunities. Table 4-4 depicts the number of direct and indirect jobs projected to be created because of the proposed railroad construction.

The influx of a large number of non-local workers could create some economic dislocations, such as the temporary shortage of goods and services. However, on an area wide basis, the non-local construction workers are unlikely to alter the economic environment markedly, due to their residence in the self-contained construction centers. The increased demand for local labor, caused by the railroad construction, could affect the ranch labor pool utilized by approximately 50 to 75 percent of the project area ranchers. Not only could the availability of labor be reduced, but the cost of obtaining labor could increase, because ranchers might be forced to pay higher wages to compete with those wages offered by the construction companies.

Table 4-2. Projected Railroad Construction Expenditures by Location As a Percentage of Total penditure.

ITEM	BILLINGS	MILES CITY	SHERIDAN	OUT OF STATE
Fuel	20%	50%	30%	00
Bridge material	40%	10%	10%	40%
Cattle Passes & culverts	90%	10%	00	00
Slope protection, seeding, mulching, R.O.W. fencing	25%	40%	35%	00
Track materials	00	00	00	100%
Cattle guards	40%	30%	30%	00
Buildings	20%	40%	40%	00
Source: Mission Engineering, 1990.				

Table 4-3. Projected Railroad Construction Expenditures by Location in Dollars.

ITEM	BILLINGS	MILES CITY	SHERIDAN	OUT OF STATE
Fuel ¹	\$ 3,135,891	\$ 7,841,228	\$ 4,803,835	
Bridge material	\$ 7,499,400	\$ 1,874,850	\$ 1,874,850	\$ 7,499,400
Cattle passes, culverts & vehicle underpasses	\$ 13,555,890	\$ 1,506,210		
Slope protection, seeding, mulching, R.O.W. fencing	\$ 1,225,156	\$ 1,960,250	\$ 1,715,219	
Track materials				\$ 75,200,731
Cattle guards	\$ 172,800	\$ 129,600	\$ 129,600	
Buildings	\$ 120,000	\$ 240,000	\$ 240,000	
TOTALS	\$ 25,709,137	\$ 13,552,138	\$ 8,763,504	\$ 82,700,131
¹ Diesel at \$1.50/gallon. Source: Mission Engineering.				

Table 4-4. Projected Direct and Indirect Employment Due to Construction of the Railroad.

YEAR	DIRECT	INDIRECT ¹	TOTAL
1	395	600	995
2	364	553	917
3	207	315	522
TOTAL			
¹ Montana Department of Labor and Statistics.			

4.2.2.3 Demand for Services

The construction of the proposed Extension would increase the population above the baseline, or "no action" level. However, new population, which is directly related to construction and operation of the Extension [the impact population], would comprise less than 2 percent of the projected area population at the peak employment level. This impact population's characteristics of age, sex, and marital status would not differ significantly from those characteristics of the baseline population. Its population/employment ratio would be 1.8, below the baseline ratio of 2.2. The impact on the demand for public services would involve this impact population. Impact population figures are shown in Table 4-5.

Table 4-5. Population Increases During TRRC Construction.

YEAR	AVERAGE NUMBER OF EMPLOYEES	IMPACT POPULATION ¹
1	395	711
2	364	655
3	207	373

¹ Mountain West Research, 1981.

Several factors would reduce an inordinate increase in service demands. Non-local workers would reside primarily in construction centers. In addition, construction workers, who do not reside in these centers most likely would locate in Miles City or Sheridan, which can absorb such population increase more easily than can smaller communities.

On an area-wide basis, the population increase is unlikely to alter the social environment significantly. Some problems could arise in smaller communities, such as Ashland and Birney. The short term influx of a relatively large number of non-local workers into these smaller communities could cause conflicts between the local residents and the non-local workers.

4.2.3 Operation and Maintenance

4.2.3.1 Direct Employment

TRRC anticipates that a total of 64 persons would be required for the operation of the TRRC railroad (Table 4-6). The majority of train operating staff would be headquartered in Miles City. There would be four employees in Ashland and four in the Sheridan area. Crews awaiting call or resting the statutory minimum hours would likely stay in Sheridan.

Table 4-6. Employment for Railroad Startup.

POSITION	NUMBER OF EMP- LOYEES	POSITION	NUMBER OF EM- PLOYEES
Train Crew Members	20	Administrative	
Train Dispatchers	5	General Manager	1
General Manager Terminal Train Operations	1	Staff	7
Supervising Trainmasters Terminal Train Operations	2	Maintenance (Miles City)	
Equipment Maintenance		Foreman	1
Foreman	1	Crew	4
Diesel Mechanics	2	Maintenance (Ashland)	
Electricians	2	Section Foreman	1
Welder	1	Section Gang	3
Mechanic Helper	1	Track Inspectors	2
Carmen/Inspectors	5		
Signal/Communication Techni- cian	1		
TOTAL		64	

4.2.3.2 Indirect Employment

The operation and maintenance of the proposed rail line would create jobs that would vary in number based on the amount of coal that is actually produced and transported. The employment projections for the operation of the railroad are presented in Table 4-7. The operation of the railroad would indirectly increase BN employment downline from Miles City. The operation of the railroad could also reduce the number of Sheridan-based and Forsyth-based BN employees.

Expenditures made locally by the TRRC also would create employment in the project area. Table 4-7 presents the total employment predicted to occur because of railroad operation and maintenance.

4.2.3.3 Impacts to the Local Economics

Most TRRC personnel would reside in Miles City. The resultant demand for services would be concentrated in Miles City. Given the current economic conditions in the area and the availability of existing services, little significant impact is anticipated for Miles City.

Table 4-7. Total Employment Due to Operation and Maintenance of the TRRC.

YEAR	BASIC DIRECT	BASIC INDIRECT	TOTAL, INCLUDING DIRECT EMPLOYMENT
1996	64	97	161
2000	92	144	236
2005	109	166	275
2010	126	191	317
Source: TRRC EIS (1985).			

TRRC mileage by county and school district is shown in Table 4-8. Under the development scenario proposed by TRRC, the Otter Creek Spur is not expected to be constructed until year 2009.

Table 4-8. Miles of TRRC Within Affected School Districts.

	Preferred Alignment (miles)	4 Mile Alternative (miles)	Preferred ROW/Otter Creek Spur (miles)	Otter Creek Spur (miles)
BIG HORN COUNTY				
Big Bend Dist. #17K		11		
Squirrel Creek Dist. #1	10	7	10	
CUSTER COUNTY				
Garland Dist. #11	16	16	16	
Kircher Dist. #3	15	15	15	
Miles City Dist. #1	3	3	3	
SH - Foster Creek Dist. #86	12	12	12	
POWDER RIVER COUNTY				
Ashland Dist. #32J			6	6

Table 4-8. Miles of TRRC Within Affected School Districts.

	Preferred Alignment (miles)	4 Mile Alternative (miles)	Preferred ROW/Otter Creek Spur (miles)	Otter Creek Spur (miles)
ROSEBUD COUNTY				
Ashland Dist. #32J	29	29	32	3
Birney Dist. #3	34	34	34	
Rosebud Dist. #12	1	1	1	
TOTAL	120	128	129	9
Source: Mission Engineering; School District maps from Big Horn, Custer, Powder River and Rosebud counties.				

The state and local government units in Montana are currently reviewing the State's millage rate and assessment process as it applies to railroad property. At the present time the Montana Department of Revenue is unable to make a final determination of applicable tax liability for the proposed rail line. However, a preliminary assessment suggests that, when the railroad is in full operation, the property tax bill for all counties through which the railroad runs would be approximately \$1 million per annum under Montana's current three-part valuation and taxing procedures. Mill levies for school districts that would receive tax benefits from construction of the entire TRRC rail line are shown in Table 4-9.

Table 4-9. Tax Year 1991 Mill Levies for School Districts Impacted by TRRC.

County	District	County	School Equalization	H.S. District	Elementary District	City/Town	Total
Big Horn	Big Bend, #17	47.93	78.98	21.45	23.98		172.34
	Squirrel Creek, #1	47.93	78.98	2.48	1.33		130.72
Custer	Garland, #11	94.58	91.24	61.24	13.09		260.15
	Kircher, #3	94.58	91.24	61.24	26.38		273.44
	Miles City, #1	94.58	91.24	61.24	82.40	138.03	467.49
	SH — Foster Creek, #86	94.58	91.24	61.24	6.16		253.22
Powder River	Ashland, #32J	122.65	88.00	22.44	35.83		268.92
Rosebud	Ashland, #32J	11.26	64.36	5.79	35.83		117.24
	Birney, #3	11.26	64.36	5.79	29.04		110.45
	Rosebud, #12	11.26	64.36	39.63	50.50		165.75
Source: Montana Property Tax Mill Levies, 1991.							

Rosebud County (52 percent of the total rail line) could receive approximately \$520,000 a year in property taxes; Custer County (35 percent of the total rail line) could receive approximately \$350,000 a year; Big Horn County (8 percent of the rail line) could receive approximately \$80,000 a year; and Powder River (5 percent of the rail line) could receive approximately \$50,000 a year in property taxes. Total revenues received through the analysis period of 1996 to 2010, could be \$7.8 million for Rosebud County; \$5.2 million for Custer County; \$1.2 million for Big Horn County; and \$100,000 for Powder River County (Table 4-10).

Table 4-10. Cumulative Property Taxes from the TRRC by County from Commencement of Operation to 2010.

	ROSEBUD	CUSTER	BIG HORN	POWDER RIVER ¹
1996	\$ 520,000	\$ 350,000	\$ 80,000	-
1997 - 2000	\$ 2,080,000	\$ 1,400,000	\$ 320,000	-
2001 - 2005	\$ 2,600,000	\$ 1,750,000	\$ 400,000	-
2006 - 2010	\$ 2,600,000	\$ 1,750,000	\$ 400,000	\$ 100,000
Total	\$ 7,800,000	\$ 5,250,000	\$ 1,200,000	\$ 100,000
¹ The spur line to Otter Creek which is the only rail line located in Powder River County, is not scheduled to be constructed until 2009.				

Sheridan, Wyoming and Forsyth, Montana could be adversely affected by a decrease in the number of coal trains passing through these communities. There are approximately 40 coal trains per week (20 loaded, 20 unloaded) coming and going from the Decker/Spring Creek area through Sheridan. There are approximately 10 coal trains per week (5 loaded, 5 unloaded) coming and returning through Sheridan on the Gillette-Sheridan-Forsyth run. A total of 25 round-trip trains could use TRRC; 5 of these round-trip trains would still pass through Sheridan but not through Forsyth; the 20 round-trip trains originating from Decker/Spring Creek could no longer pass through Sheridan and Forsyth.

In Sheridan, Wyoming, BN employs approximately 324 persons, this includes 280 train, yard and engine (T, Y and E) service employees; 35 maintenance persons and 9 clerks. This does not include exempt supervisory managers. There are several crews in Sheridan; the loading pool helps load the trains, the east pool takes trains from and returns trains to Gillette, the west pool takes trains to and returns trains from Laurel. In Forsyth, Montana, the BN employs approximately 104 persons; 65 T, Y and E employees, 33 maintenance persons and 6 clerks. The Forsyth crew operates from Forsyth to Laurel hauling merchandise and coal trains.

Potential affects to Sheridan, Wyoming and Forsyth, Montana from construction of the proposed Extension are difficult to quantify because of the nature of BN employment

in those communities. However, the following represents the best estimates available.

There are two sources of coal moving west through Sheridan that would be affected by the construction and operation of the proposed TRRC extension. Approximately 3 millions tons originate from the Gillette area mines and an additional 12 million tons are hauled from the Decker area mines. Nearly all of this coal would be hauled by the TRRC when it commences operations. Less than one train a day (.7) is required to haul the 3 million tons from Gillette assuming 11,615 ton trains running 365 days per year. Similarly, under the same assumptions, 2.83 trains are required to move the 12 million tons of Decker area coal. Estimates suggest that each BN crew member averages a 4-day week on these movements (Table 4-11).

The estimated total BN jobs which could be displaced due to the construction and operation of the proposed Extension is 56.8. Approximately 35.8 of these jobs would be interdivisional positions in Sheridan and Forsyth. Based on the mileage between those two points², 14.5 jobs would be displaced in Forsyth and the balance of 42.3 jobs could be displaced in Sheridan.

BN employees in these two communities are parties to local and national employment agreements with BN which include a variety of job protection arrangements.

Table 4-11. Potential Train Crew Impacts.

Gillette Area Coal											
Assignment	Crew size	Total Crew Mem- bers		Trains/ day	Re- quired crew days		Days/ week	Crew days/ week		Days Worked	Total Jobs Af- fected
Sheridan to Forsyth ¹	2.9										
Return (Forsyth-Sheridan)	2.9										
1/2 Helper Day	1.0	6.8	X	.7	4.8	X	7.0	33.6	÷	4.0	8.4
Decker Area Coal (East and West Decker; NERCO Spring Creek)											
Sheridan to Forsyth	2.9										
Forsyth to Sheridan	2.9										
Mine Turn	2.0										
Helper	2.0	9.8	X	2.83	27.7	X	7.0	193.9	÷	4.0	48.4
¹ Forsyth and Sheridan crews both work on an interdivisional basis to move coal between those two points. Assuming that the BN agreement does not affect Forsyth, 4-man crews would continue to be used from that point. The use of 2.9 persons for a crew size takes into account the difference between 4-man Forsyth crews and 2-man Sheridan crews. In reality, some type of interlocal agreement will have to be worked out to operate these interdivisional trains.											

² Jones - Forsyth = 89.3 miles (40.6%); Jones - Sheridan = 130.5 miles (59.4%).

Sheridan

The proposed Extension would have minor economic impacts on the community of Sheridan, Wyoming. During the construction period, Sheridan would benefit from increased construction employment, contracted services, and materials purchases made by the TRRC in Sheridan.

An average of approximately 315 construction workers would be employed during the three-year construction period. Approximately 60 percent of this construction work force would consist of non-local workers, who would live in self-contained construction centers and have minimal impact upon local economies. Approximately 40 percent of the construction work force, however, would be hired from the local labor force. Of this group, 32 are expected to come from Sheridan and surrounding areas, and total payroll to these workers during the construction period would approximate \$2.4 million. Using a total income multiplier of 1.8 for the Wyoming economy, the direct and indirect income attributable to TRRC construction jobs would be \$4.3 million.

TRRC also expects to spend approximately \$8.8, million in Sheridan for construction materials. These expenditures would have a positive impact upon earnings in the Sheridan area. Using an earnings multiplier of .583 for new construction expenditures yields a \$5.1 million increase in earnings in the Sheridan area over the three-year construction period. These construction expenditures would also generate the equivalent of 102 new job opportunities in the Sheridan area during the construction period. The total impact of construction payroll and materials expenditures in the Sheridan area would be approximately 134 new job opportunities and \$9.4 million in additional income over a three-year period.

The present value of earnings losses due to decreased BN traffic depends on what assumptions are made concerning discount rates and planning horizons. Assuming an average BN salary of \$45,000 per annum and a total income multiplier of 1.8, the total annual income loss to Sheridan would be \$3.4 million. Over a 20 year period, using an 8% discount rate, the total present value of this loss would be \$33.3 million. Using a 4% discount rate over the same period, the loss would be \$46.2 million. This figure, of course, would be reduced by estimating the valued individual severance programs negotiated with the BN. Moreover, an estimated \$9.4 million in new income would be injected into the Sheridan area during the construction period.

Overall, impacts to Sheridan from the construction and operation of the proposed Extension are expected to be minor. Both Sheridan and Sheridan County experienced population declines between 1980 and 1990, and there is sufficient infrastructure and public service capacity in place to handle the modest economic growth that would occur during the construction period. The potential long term net loss of railroad jobs due to the TRRC should have minimal consequences for the local economy. This loss represents only one-tenth of one percent of the county's 1989 employment base of 12,490.

Any negative impacts to Sheridan due to the TRRC would be offset by the effect of decreased transportation costs on Spring Creek\Decker's competitive position in the coal market. With the new railroad, transportation of coal from these mines to the Midwest, one of the area's major coal markets, would become cheaper. This cost advantage would help these mines secure its markets for the future and possibly even gain access to new markets, thus lending a stabilizing effect to Sheridan area economy.

Forsyth

Construction of the proposed Extension would also impact the community of Forsyth, Montana, a community of approximately 2,100 people in central Rosebud County. For this analysis, it is assumed that the affected BN employees live in Forsyth. However, since the BN crew district for this area is Forsyth/Glendive, it is impossible to be sure of the actual residence for all affected employees. During the construction period, Forsyth would benefit from increased construction employment and opportunities. After the new railroad became operational, however, some railroad jobs in Forsyth could be displaced because the new rail line would reduce BN rail traffic through the area.

It is anticipated that an average of approximately 315 construction workers would be employed during the three-year construction period. Approximately 60 percent of this construction work force would consist of nonlocal workers, who will live in self-contained construction centers and have minimal impact upon local economies. Approximately 40 percent of the construction work force, however, will be hired from the local labor force. Of this group, 13 workers are expected to come from Forsyth and surrounding areas, and total payroll for these workers during the construction period would approximate \$960,000. Using an income multiplier of 1.8 means that an additional \$1,730,000 of income would accrue to Forsyth and surrounding areas during construction. Using the same analysis applied above to Sheridan, the 20-year earnings loss in Forsyth would range from approximately \$11.9 to \$16.5 million using the 8% and the 4% discount rates respectively. As with Sheridan, this loss would be offset by individually negotiated severance agreements with BN and by jobs created by TRRC.

Sheridan and Forsyth crews would continue to handle merchandise trains. An average of 5 merchandise trains per day move between Gillette and Laurel. Forsyth would continue to handle coal trains from Colstrip, Big Sky and Sarpy Creek and return with the same train as loads. Forsyth crews also would continue to work eastbound merchandise trains from Forsyth to Glendive.

4.2.4 Related Actions

TRRC's entire proposed line between Miles City and Decker could provide shorter haulage for the existing Spring Creek/Decker mines and could facilitate development of coal mines in the Ashland/Birney area. The operation of the railroad and the construction and operation of the Montco mine and potential mines in the Ashland/Birney area in the TRRC service area could alter the economic, demographic and social character of the project area.

Most of the initial haulage on the TRRC would originate from the existing Spring Creek/Decker coal mines. This initial haulage would not create additional population, social or fiscal impacts to the four county region.

Montco could be producing 1-2 million tons per year by 1996. By 2000, it is anticipated that Montco and potential mines in the Ashland area could produce a total of 8 million tons per year, increasing to 10 million tons per year in 2005. By 2010, Montco and potential mines in the Ashland area could be producing a total of 18 million tons per year.

By 2010, TRRC could be hauling 21 million tons of coal per year from the existing mines and 18 million tons per year from the potential new mines.

4.2.4.1 Population and Employment

Based on TRRC's projected coal traffic figures, which closely approximate the medium scenario in the 1985 TRRC EIS, the construction of TRRC's entire rail line between Miles City and Decker and the development of related mines could increase the population a total of 3,429 by 2010. All of the project area counties would grow in population as a result of the increased mining activity. Rosebud County would experience the greatest share of impact population of 53 percent; Powder River County would receive 32 percent; Custer County would receive 15 percent and Big Horn County would receive less than one percent.

Under the 1985 TRRC EIS high scenario, the population would increase by 4,300. The distribution of people by county would be the same as under the medium scenario.

The Spring Creek/Decker mines' coal production levels would rise slightly between TRRC's initial operation and the year 2010.

The 1991 production at the Spring Creek/Decker mines was slightly over 16 million tons. Estimated coal production for these mines in 1992 and 1993 is 16.7 and 16.8 million tons respectively. These numbers could vary up or down as a result of the Clean Air Act

Amendments of 1990, or changes to Montana's Coal Severance Tax. TRRC's presence and the consequent shorter coal haul could ensure the competitive advantage of Spring Creek/Decker coal. This could have the effect of stabilizing the mining interests in the Sheridan area.

Table 4-12 is based on the assumption that the line is completed on the TRRC schedule calling for operation to commence in 1996. It also assumes that the mines in the Ashland area will be operational between the year 2000 and 2010. If construction of those mines are delayed, then potential population increases to area communities Colstrip, Ashland, and Broadus would not occur.

Analysis to date indicates that a significant portion of the population increases associated with Ashland area mines and the Decker area mines would locate in Colstrip, with some increases in Ashland or Broadus (see Table 4-12). Miles City could realize a population increase of 15 percent which would be associated with the operation of the rail line itself.

Additional indirect employment would be created by the construction and operation of the railroad and related mines. The proposed railroad would create an economy of steady growth. Most employment sectors would continue to grow with the exception of agriculture, which would continue to decline. By 2010, mining would be the dominant employment sector in the region. Per capita income would increase over baseline levels.

Table 4-12. Location of Population Increases¹ Associated with the TRR, Montco, and Three Proposed Mines.

	1996	2010
BIG HORN COUNTY		
Decker	10	19
CUSTER COUNTY		
Miles City	141	280
POWDER RIVER COUNTY		
Broadus	36	143
PR-Ashland Area	109	429
Other Powder River	6	32
ROSEBUD COUNTY		
Ashland Area	79	289
Lame Deer	26	101
St. Labre	14	56
Northern Cheyenne Reservation	24	79
Birney area	12	48
Colstrip	97	381
Forsyth area	6	32
Other Rosebud	4	16
TOTAL	564	905
¹ Includes any direct and indirect employment. Source: Mountain West Research, Inc. 1981; Powder River I Regional EIS, Draft Economic, Social and Culture Supplement, 1989.		

4.2.4.2 Demand for Services

Construction of TRRC's preferred alignment or the Four Mile Creek Alternative would increase demand for local services, principally in housing and public facilities. A growing demand would exist for single family homes and mobile homes. By 2010, 1,225 new family units could be required. A long-term market for housing would exist and could be accomplished in an orderly fashion with advanced planning. Without advanced planning, a housing shortage could exist in the year 2000 when two mines could begin operations. Between 2000 and 2010, Ashland and Broadus could experience some housing shortages associated with projected population increases. The population increase in the project area would not create a large demand for public facilities. After 2000 Rosebud County may need to expand some schools, to add police or fire vehicles and possibly establish additional

recreational areas. If the area mines develop on the schedule utilized in this document, by 2005, the Broadus Elementary School, the Birney Elementary School, and the Ashland Elementary School could require expansion (Table 4-13).

Table 4-13. Enrollment and Capacity Figures for Schools Potentially Impacted by TRRC and Related Activities.

	1990 Enrollment ¹	2010 Estimated Enrollment ²	Estimated School Cap- acity ³	Percent Over (Un- der) Capacity ⁴
BIG HORN COUNTY				
Squirrel Creek Elem. ⁵	10	11	17	(35)
Big Bend Elem. ⁵	4	5	17	(71)
CUSTER COUNTY				
Miles City Dist. #1	1338	1341	1400	(4)
Custer County H.S.	625	723	800	(10)
POWDER RIVER COUNTY				
Broadus Elem.	196	391	250	36
Powder River H.S.	123	289	375	23
ROSEBUD COUNTY				
Birney Elem.	18	44	30	32
Colstrip #19	955	1201	1275	(6)
Colstrip H.S. #19	453	570	600	(5)
Ashland Elem.	102	339	150	66
Forsyth #4	585	626	675	7
Forsyth H.S. #4	232	248	350	(29)
¹ OPI 1990-1991 Enrollment figures. ² TRRC EIS (1985). ³ Based on superintendent and teacher estimates. ⁴ 2010 enrollment estimates as compared to estimated school capacity figures. ⁵ Students go to Sheridan, Wyoming for high school.				

The Montana Coal Board is empowered by statute (90-6-205, MCA, 1991) to award grants and loans to local governmental units, federally recognized Indian tribes, and state agencies. The grants are designed to assist local governmental units in meeting the impact of coal development by enabling them to provide governmental services and facilities which are needed as a direct consequence of that development. Since its inception, the Coal Board has granted funds (\$64,353,000) to provide improved or new services to areas impacted by coal mining. Approximately \$16.9 million of those funds have gone to upgrade facilities within the project area. Many of the items identified in the 1985 TRRC EIS as needing upgrade, expansion or construction have been funded in recent years by the Montana Coal Board.

Grants have been provided to construct or to upgrade educational facilities in the project area. Grants were provided to assist in the construction of a new elementary and

high school in Colstrip. Ashland received funds to construct six classrooms, a new gym and two administration rooms. In addition, funds to construct a six unit apartment for teacher housing were granted. Funds for playground improvements were also provided. Construction funds for a new elementary and middle school building and to improve the existing high school in Forsyth were provided. In Miles City, funds to construct a library and business-vocational trades facility at the community college were granted. Lame Deer School District #6 received money to construct five new classrooms and gym and to remodel existing facilities. In addition, funds to construct 12 teacher housing units were provided. Birney School District received funds to construct a library and kindergarten facility. Big Horn County received funds to purchase a new bookmobile to serve rural residents. The Dull Knife College received money for construction of a student union building and renovation of existing dorms.

The Coal Board has granted funds to provide for/or to upgrade community health facilities. Colstrip received funds for a comprehensive human service program and purchased a truck-type ambulance for the Colstrip Ambulance Service. Rosebud County purchased emergency medical services equipment including an ambulance with Coal Board funds. Big Horn County received funds to construct a 36-bed nursing home and to remodel the existing hospital. Miles City received funds to renovate the Mental Health Center building. Funds for new construction and remodeling of the Rosebud County Hospital in Forsyth were provided. Rosebud County purchased a vehicle, radio and first-aid supplies for the Search and Rescue Unit.

Law enforcement services also have received funds from the Coal Board. Big Horn County constructed an annex to the courthouse to house a jail, holding facility and office. Rosebud County received funds to purchase two 4-wheel drive vehicles for the Sheriff's Department. Rosebud County received funds to construct a county jail. Law enforcement support services providing support to local departments was funded by the Coal Board.

Local fire departments received funds from the Coal Board. Ashland Rural Fire District received funds for construction of a new fire station, expansion to that station and purchase of three used fire trucks. Big Horn County received funds to construct a community facility to house a fire station, ambulance storage and training center and to purchase a new fire truck and pumper truck. An additional fire station was built with Coal Board funds. The City of Forsyth purchased a new fire truck and fire apparatus testing equipment with Coal Board funds.

Money for recreational facilities have been provided by the Coal Board. A tennis court at Busby was built. Forsyth received money for construction of a community recreational complex and Riverside Park and fairground improvements. A community center was built with Coal Board funds at Decker and Lame Deer.

Water and sewer districts have received funding to construct or improve facilities. Forsyth received money to upgrade its treatment facility including expanding the size of the lagoons and replacing existing water mains. Colstrip enlarged its facility including the addition of a lagoon. Ashland received money for construction of a reservoir and a sewer lagoon. Colstrip upgraded the water treatment facility including a new 500,000 gallon tank. A tri-county solid waste disposal site was funded by the Coal Board. Miles City received funds to expand the water main system.

The Montana Department of Highways received funds for engineering, right of way purchase and utility relocation of 7.7 miles on FAS 314. A county maintenance shop was built in Big Horn County. Road maintenance equipment, including two dump trucks and a snowplow were purchased for Colstrip.

4.2.4.3 Fiscal Impacts

The taxable valuation in the four county region is shown in Table 4-14. Revenue, expenditure and difference between revenue and expenditure is shown in Table 4-15.

A net fiscal balance by county was developed in the 1985 EIS for Custer, Powder River and Rosebud counties. The costs associated with the impact population were developed for each county. As noted above, since 1981, many of the facilities identified as needing construction, upgrade or purchase have been funded by the Coal Board.

The present projected impact population is 44 percent below the impact population that was projected for the mine development and railroad operation in the 1985 TRRC EIS. The figures for local government costs for capital expenses and operation and maintenance from the 1985 TRRC EIS were used and reduced by 44 percent.

From 1996 through 2010 Custer County will have costs totalling \$949,000. Powder River County's costs are the highest at \$5,279,000. Rosebud County's costs total \$1,558,000.

Table 4-14. Taxable Valuation in Big Horn, Custer, Powder River and Rosebud Counties 1979 to 1992.

YEAR	COUNTY			
	BIG HORN	CUSTER	POWDER RIVER	ROSEBUD
1979-1980	70,050,508	19,492,488	63,564,660	74,778,330
1980-1981	109,381,036	21,063,819	50,773,300	103,277,016
1981-1982	108,079,038	20,261,511	63,537,452	121,208,222
1982-1983	112,770,723	17,592,496	79,845,401	222,617,164
1983-1984	127,755,762	18,274,984	67,513,144	244,364,813
1984-1985	172,786,863	18,545,146	52,422,694	237,854,469
1986-1987	124,853,306	17,084,936	37,513,875	218,881,371
1987-1988	113,948,988	16,998,350	16,505,334	224,690,227
1988-1989	105,390,956	14,940,185	17,374,039	214,531,911
1989-1990	100,639,065	16,042,756	14,689,850	229,012,569
1990-1991	26,846,266	14,519,417	6,035,110	178,512,889
1991-1992	26,495,312	14,413,458	6,146,020	177,796,076
Source: Montana Taxpayers Association, 1979-1991. The 1990-1991 and 1991-1992 figures for Big Horn and Powder River Counties excluded centrally assessed properties.				

County income from the Flat Tax for the medium scenario is shown in Table 4-16. Custer County has no coal mines but would receive revenue from property tax on the railroad. Custer has a positive net fiscal balance of \$4,301,000. Powder River would have a positive net fiscal balance of \$13,721,000. Rosebud would have a positive net fiscal balance of \$36,342,000. The state would receive revenue from the Coal Severance Tax, dispersed according to the following allocations, effective July 1, 1990. Fifty percent of the revenue received from the Coal Severance Tax would go to a permanent trust fund. Twelve percent would go to a highway reconstruction trust fund account; 30 percent to the state special revenue fund for state equalization aid to state public schools; and 17.5 percent to the credit of the local impact account. The remainder of the revenue would be dispersed to miscellaneous accounts and funds to benefit various state programs.

Anticipated revenue from the Coal Severance Tax from the new mines is shown in Table 4-17.

Table 4-15. Revenue, Expenditures, and Difference Between Revenue and Expenditure in Counties Potentially Impacted by TRRC and Related Activities (1989-1991).

Government Entity	1989			1990			1991		
	Revenue	Expenditures	Difference Between Revenue and Expenditures	Revenue	Expenditures	Difference Between Revenue and Expenditures	Revenue	Expenditures	Difference Between Revenue and Expenditures
Big Horn County	6,389,924	6,772,041	(382,117)	7,323,273	6,672,770	650,503	6,308,893	7,106,445	(797,552)
Custer County	2,846,671	2,772,265	74,406	2,856,889	2,843,992	12,897	3,451,453	3,557,612	(106,159)
Miles City	2,618,525	2,599,034	19,491	5,216,832	5,192,906	23,926	5,372,019	5,087,948	284,071
Powder River County	1,229,802	1,506,652	(276,850)	1,551,611	1,642,488	(90,877)	1,732,742	1,738,262	(5,520)
Broadus	170,959	175,755	(4,796)	169,372	169,092	280	161,575	164,627	(3,052)
Rosebud County	5,126,617	5,221,425	(94,808)	5,802,450	5,170,176	632,274	5,576,972	6,615,858	(1,038,886)
Forsyth	514,605	503,399	11,206	1,433,172	1,466,437	(33,265)	1,335,755	1,144,734	191,021

Source: Unpublished annual financial statements available at the offices of The County Clerk for the counties and cities listed above.

Table 4-16. Flat Tax Paid from Coal Production by County.¹

YEARS	ROSEBUD COUNTY	POWDER RIVER COUNTY
1996	\$ 700,000	
1997 - 2000	\$ 4,550,000	\$ 1,050,000
2001 - 2005	\$ 10,850,000	\$ 5,250,000
2006 - 2010	\$ 14,000,000	\$ 12,600,000
TOTAL	\$ 30,100,000	\$ 18,900,000
¹ Coal at \$7.00/ton, tax at 5%.		

Table 4-17. Revenue from Coal Severance Tax.¹

MEDIUM SCENARIO	
YEARS	REVENUE
1996	\$ 2,100,000
1997 - 2000	\$ 16,800,000
2001 - 2005	\$ 48,300,000
2006 - 2010	\$ 79,800,000
TOTAL TO STATE	\$ 147,000,000
¹ Coal from new mines only, coal at \$7.00 per ton.	

Big Horn County mines, Spring Creek and Decker are expected to increase production by a minimum of 3 million tons by 2010. No population increase associated with the railroad is anticipated. The railroad through property tax payments would have positive economic affects on Big Horn County. Because of this, Big Horn County would have no costs associated with new mine development or railroad operation. Therefore, it is not included.

4.3 TRANSPORTATION

The proposed Extension and related coal development would increase the number of vehicles using project area roads. This increase could potentially disrupt traffic moving through the project area and could also result in the degradation of the area's road system. The operation of the railroad also would result in occasional delays at the various train crossings of project area roads.

4.3.1 Construction

During the construction period, roads within the immediate vicinity of construction areas would experience an increase in the amount of traffic -- i.e., Federal Aid Secondary (FAS) roads 566, and 314, and the Northern Cheyenne Indian Reservation road connecting Ashland and Birney Village. The potential disruption of local traffic would be reduced by TRRC plans to: 1) include a two-lane service road within the rail line ROW to transport workers and materials; 2) use a work train on constructed rail segments to carry ballast and track to the next construction sites as rail is laid; 3) provide workers with camps in the vicinity of construction sites; and 4) disperse construction activities and the work force along the ROW. TRRC plans to use existing roads in the area and to negotiate access to construction sites over private roads; therefore, construction of new access roads outside of the ROW would be unnecessary.

Drivers would be temporarily delayed during construction of the 17 private road crossings and the 10 public road crossings for the proposed Extension. All crossings are "at-grade" crossings. Nine (9) of the public crossings affect FAS 566. One public crossing traverses FAS 314, at Mile Post 9.52. As indicated in the 1985 TRRC EIS, a provision that the TRRC open one traffic lane during construction of private and public crossings would result in only small delays.

TRRC's use of project area roads to transport materials could result in an increased need for road maintenance. The required degree of maintenance would depend on the current road conditions and on the increases in traffic. Again, TRRC plans to transport most materials and many workers within the ROW which would mitigate the adverse impact to roadways. Plans to disperse construction activities and the work force along the alignment would limit the concentration of TRRC-related activity to a few, specific road segments.

Current TRRC plans include the reconstruction of FAS 566 at six different points. Since county road FAS 566 is part of the Federal Aid Secondary highway system, TRRC would be required to obtain Montana Department of Highways (MDOH) permits for any reconstruction. Upon completion of the final engineering, TRRC would need to submit road reconstruction plans for review by officials not only of the MDOH but also of Rosebud County, the county in which the reconstruction areas are located. The State, after considering local comments, would make the final decision regarding plan modifications. Any reconstruction costs would be the responsibility of TRRC.

4.3.2 Operation and Maintenance

The proposed Extension, with either TRRC's preferred alignment or the Four Mile Creek Alternative, would result in few transportation impacts throughout the analysis period. The primary issue of concern would be the delays experienced by vehicles at the unseparated rail/highway ("at-grade") crossings along the route of either proposal.

Nine (9) rail/roadway crossings associated with the preferred alignment involve FAS 566. The remaining crossing for that route crosses FAS 314. Five (5) rail/roadway crossings are unique to the Four Mile Creek Alternative and involve the northern branch of FAS 566. Three (3) crossings are shared by both routes. All crossings are proposed as at-grade crossings to be constructed with standard 40-foot wide, treated timber. If required by landowners, the crossings would be equipped with cattle guards. TRRC would be responsible for the long-term maintenance of the grade crossings.

The method used to calculate vehicular delay at rail/highway crossings employed for the 1985 TRRC EIS was duplicated for the crossings located along the route of TRRC's preferred alignment and the Four Mile Creek Alternative.³ The calculation required a determination of the number of vehicles delayed, the percentage of trips delayed and the average duration of each delayed vehicle. The percentage of trips delayed was determined by dividing the estimated number of vehicles delayed by the average daily highway traffic (ADHT) for each crossing. The method is based upon current ADHT figures obtained from the MDOH. The methodology outlined in the 1985 TRRC EIS for averaging the duration of delay for each vehicle also was used to estimate the duration of vehicle delay attributed to trains on the TRRC's preferred alignment and the Four Mile Creek Alternative.⁴

³ The methodology required the calculation of the following equation:

Expected Delays = (P) Probability of Delay X ADHT (TRRC DEIS 1983:A3-2)

whereby, (P) Probability of Delay is the expected blocked-crossing time per day, in minutes, divided by the number of minutes in a day. The expected blocked-crossing time per day is a function of the length, speed and the number of expected daily trains at each crossing, determined by the following equation:

$$(ADTT) (L + 3000') / S$$

whereby ADTT = Average Daily Train Traffic; L = Train length; S = Train Speed, in feet per minute; 3000' = typical distance between a crossing and that crossing' signal activation circuits. The information assumed in this equation was derived from the operating plan developed for the TRRC by CSI, Springfield, Virginia, "Draft Task Report (Task 2); Operating Plan for the Proposed Tongue River Railroad," February 1990. 6,532 foot-long trains were assumed, as well as 50 MPH speeds. Given the proposed coal haulage along the Extension route, the Average Daily Train Traffic was assumed at 8 in 1995/2000; 10 in 2005/2010 (TRRC DEIS 1983:A3-21).

⁴ The estimate of the average duration per delay equals one-half of the expected blocked-crossing time per train. Expected blocked-crossing time is based on the previously discussed methodology given for Probability of Delay under E.2.a.(1) (TRRC DEIS 1983:A3-21).

Projections for the daily crossing delays ranged from 1-3 trips per day for all of the crossings on either TRRC's preferred alignment or the Four Mile Creek Alternative. This represents less than 2 percent of the projected trips on either alignment throughout the analysis period. The average delay per vehicle would be slightly longer than 1 minute. The high coal production scenario would not affect the delay figures estimated above, since none of the coal associated with the high scenario would be transported over either TRRC's preferred alignment or the Four Mile Creek Alternative.

Estimates of delays should be considered in the context of the rural setting of TRRC's proposed alignment and the Four Mile Creek Alternative. The trains operating along either route would travel at a speed of 50 MPH, blocking crossings for a minimal amount of time. Nearly all of the vehicles disrupted by train operations would be operated by rural residents traveling to and from outside communities and mine workers traveling to and from their job sites. Although no emergency services currently are available in the project area, it is possible that any emergency vehicle traveling along FAS 566 or FAS 314 in the vicinity of the railway crossings could be stopped by a TRRC train. Regarding medical emergencies, the percentage of cases in which a delay would be critical for the patient is very small.

4.3.2.1 Mitigative Measures: Estimate of Crossing Improvements

The impact assessment of vehicular delays at the unseparated rail/highway crossings requires an additional calculation to determine feasible mitigative measures. The specific methodology used to assess the need for improvements in the 1985 TRRC EIS was updated with new information provided by the MDOH Rural Planning Section.⁵

The findings under this formula are presented in Table 4-18.

⁵ The 1985 TRRC EIS used the assumption that flashing lights would be installed at crossings with a current daily traffic volume less than 1,000. For crossings with traffic in excess of 1,000 vehicles per day, automatic gates were assumed. The Department suggested using the hazard index formula, as follows:

$$\text{Hazard Index (H.I.)} = (\text{ADHT}) \times (\text{ADTT}) \times (\text{Factors } 1 + 2 - 10) + 100$$

whereby ADHT is estimated average daily highway traffic and ADTT is estimated average daily train traffic. (Factor 1 + 2 - 10) "is a factor which attempts to give certain values to and summarizes the various physical conditions encountered or anticipated at a crossing site. As currently used this factor has a maximum value of 12.2." See Page 2 of the MT Dept. of Highways "Policy, Railroad Crossing Protection," July 16, 1973, submitted with other material to HRA on June 25, 1990. The "F" value assumed was 10.2.

Table 4-18. Hazard Index for Railway Crossings.

	1996	2000	2005	2010
Crossings 1-3 Preferred Alignment and Four Mile Creek Alternative				
Hazard Index	115.9	147.7	184.6	220.3
Crossings 4-10 Preferred Alignment				
Hazard Index	66.9	77.5	95.8	108.1
Crossings 11-15 Four Mile Creek Alternative				
Hazard Index	66.9	77.5	95.8	108.1

The MDOH has the following requirements regarding crossing improvements:

1. If the Hazard Index was ≥ 200 , the railroad crossing is eligible for flashing lights.
2. If the Hazard Index times .2 was > 200 , the railroad crossing is eligible for gates.
3. If the Hazard Index times .11 was > 200 , the railroad crossing is eligible for grade separation.

According to the MDOH's suggested methodology, only three crossings -- Crossings 1 - 3 for TRRC's preferred alignment and the Four Mile Creek Alternative -- would require upgrading during the analysis period. Flashing lights would be installed at these crossings by the year 2010, when 10 trains per day would be passing over this segment of the rail line.

4.3.3 Related Actions

Population increases attributable to the development of mines served by the TRRC would cause increases in traffic volumes on area highways. Improvements such as paving, widening, realigning and structural enhancement might be required. However, the type of improvements would depend on the current highway condition and upon the increases in traffic.

4.3.3.1 Traffic Projections

The methodology employed in the 1985 TRRC EIS to estimate traffic increases was used here. Projections were based on 1) current traffic volumes adjusted throughout the analysis period to reflect natural population change in affected communities and the addition of population because of mining impact and 2) trips taken by employees of the four coal mines. Table 4-19 presents the findings of this analysis, as well as traffic projections assuming only natural population changes. These baseline figures are presented to allow their comparison to traffic figures associated with the introduction of mining development.

Estimates of traffic increases on many primary secondary highways indicate that several roadways would require improvement during the analysis period as the result of mining development associated with the proposed TRRC rail line. Of particular concern are the following roadways: FAP 39,